CIRM Major Research Facilities Grant
Applicant Information & Signature Form

FA1-00612-1

Applicant Information

Applicant Organization	University of California, Irvine		
Application Number	FA1-00612-1	Enter the application number you received via email from CIRM (for example "FA1-99999-1", where "9" represents any digit).	
Facilities Contact	Janet Mason	Email	jcmason@uci.edu
Title	Director, Capital Planning	Telephone	(949) 824-7668

Authorized Executive Officer* (e.g., Provost, CEO)

Name	Dr.	Michael	V.	Drake	
	Prefix	First	Middle	Last	Suffix

Degree	Ph.D.	Choose the highest degree earned. If your degree is not listed, enter it in the drop-down box.	
Position Title	Chancellor		e.g., Provost, CEO
Address	University of California, Irvine		Please provide a complete mailing address to which confidential information about your application may be sent.
	510 Administration		
City	Irvine	CA	Zip Code 92697
Phone Number	(949) 824-5111	Ext	Fax Number (949) 824-2087
Email (required)	chancellor@uci.edu	This email address identifies you to CIRM. Please use this email address for all correspondence with CIRM.	

***Authorized Executive Officer** - a senior organizational official who has the authority, **or who has been delegated the authority**, to commit funds for major facilities on behalf of the organization and who has the authority, **or who has been delegated the authority**, to commit the organization's resources to realize their strategic stem cell research program.

CIRM Category of Stem Cell Research Program

Please select the appropriate entry below to indicate the category for which you are competing in your application.

- (●) CIRM Institute (CIRM award of up to $50 million)
- ( ) CIRM Center of Excellence (CIRM award of up to $25 million)
- ( ) CIRM Special Program (CIRM award of up to $10 million)

CIRM Funds Requested

CIRM Funds Requested	$37,000,000
Matching Funds @ 20%	$ 7,400,000
Leverage Funds	$16,057,400
Total	**$60,457,400**

Signature

Authorized Executive Officer Dr. Michael V. Drake

I, the Authorized Executive Officer for the applicant organization, certify that the information presented in this application is true and correct.

Signature: Authorized Executive Officer

Date 2/22/08

PROGRAM NARRATIVE
Table of Contents
APPLICANT ORGANIZATION: University of California, Irvine

I. Table of Contents…… 01

II. Section 1. Executive Summary…… 02

III. Section 2. Mandatory Requirements…….. 05
A. Non-profit Status…… 05
B. Private Business Use of Facility…….. 05
C. Prevailing Wage Requirements…… 05
D. California Goods and Services…… 05

IV. Section 3. Program & Project Description…….. 07
A. Program Objectives…… 07
B. Need for the Project…… 11
C. Project Description…….. 13
D. The Space Layout…… 22
E. Project's Goals Associated with Sustainability…… 23
F. Group 2 Equipment…… 25
G. Project Elements that are Innovative in Design or Function……. 30

V. Section 4. Shared Facilities…… 33

VI. Section 5. Budget and Cost Plan/Cost Estimate…… 38
A. Capital Improvement Budget (subpart C)…… 38

VII. Section 6. Funding Plan, Leverage & Cash Flow…….. 40
A. Leverage (subpart D)…… 40
B. Drawdown Schedule (subpart D)…… 40
C. Facility Long Term Operations and Campus Commitment……. 40

VIII. Section 7. Schedule/Implementation Plan…….. 41
A. Proposed Project Schedule (subpart E)…….. 41
B. Status of Approvals and Related Schedule Impacts…… 41
C. Implementation Team and Record…… 41

IX. Section 8. Provide Plans and Specifications…….. 44
A. Building Floor Plans…… 44
B. Outline Specifications…… 44
C. Table Indicating Gross and Assignable Square Feet…… 44
D. Space Plan Requirements Submitted in Subpart E of Part 1 App.. 44

Appendices
Cost Plan Summary and Estimate
Leverage and Drawdown Schedule
Proposed Project Schedule
Building Floor Plans – Architectural Drawings

Section 1. Executive Summary

Stem cell research at the **University of California, Irvine** (**UCI**) is founded on a long history of research in regenerative medicine and developmental biology and is centered around key individuals who have made seminal discoveries on pluripotent stem cells and the understanding and treatment of human disease. The stem cell research enterprise has grown, and continues to grow, through unwavering institutional commitment, emphasis on stem cell research within the strong developmental biology research community, on-going external recruitment, robust industrial collaborations, valuable input from the patient-advocate community, and the support of community leaders and local philanthropy. Scientists at UCI pioneered the field of regeneration, development of pluripotent stem cells, large-scale production of specialized cells with very high purity, and methods for using such cells to treat damaged tissues. Treatment of spinal cord injury patients with cells derived from **human embryonic stem** (**hES**) cells developed at UCI will likely be the subject of the first hES-based clinical trial in the United States. This first trial will create a new paradigm, distinct from existing systemic stem cell-based transplantation and, as such, will inform the design of future trials. A major institutional commitment of six new faculty recruits provides the means to expand this program of stem cell research and regenerative medicine. This confluence of excellence in stem cell research at UCI (which has garnered $21.5 million in CIRM funding to date) together with the capacity for programmatic growth provides a unique opportunity to create an exceptionally strong **CIRM Institute for Stem Cell Research** based in Orange County, the second most populous county in California.

As proposed in Part I of our application, the CIRM Institute will house three programs, (1) basic and discovery research, (2) preclinical research, and (3) preclinical development and clinical research. The overarching goal of the Institute will be to facilitate the pipeline from basic research to disease treatment. To further this goal, we are requesting **$37,000,000** to construct a 3-story, 61,575 Overall Gross Square Foot (OGSF) building to house the Institute. The building will sit at the heart of the biomedical research complex on campus, leveraging surrounding core facilities and reducing construction costs. The building, with a mix of 38,907 assignable square feet (ASF) of basic, preclinical and clinical research space, maximizes cost-effectiveness and green design while providing maximum flexibility to adapt to emerging trends and technologies. Building design maximizes possibilities for interaction between basic researchers and clinicians attending to the needs of patients. The building also includes facilities for formal presentations and informal discussions to encourage interaction amongst scientists, patient advocates, and members of the lay public in their efforts to understand and address the questions important to each of these stakeholders. With its flexible open-plan design, the building will be occupied by as many as 26 lab-based and clinical researchers including experienced faculty who have made major contributions to the stem cell field, disease modeling or treatment, and have strong funding and publication records. These individuals will serve as “key investigators” around which we will recruit six new faculty members. The key investigators will provide mentorship and intellectual support to ensure the success of new junior recruits and will form a strong group into which senior recruits can be attracted. An outstanding design-build team with a proven past performance of design-build at UCI is creating a state-of-the-art building suitable for the type of multidisciplinary research required for success in this field. Importantly, the design team has the ability and track record to put the facility on the ground within two years, an essential element in helping to fulfill the mandate given to CIRM and scientists and clinicians alike by the people of the State of California.

In short, the creation of this new facility will:

- **Consolidate stem cell research on campus allowing creation and nurturing of multidisciplinary disease teams.**

- **Provide needed space for existing stem cell faculty, in addition to six new faculty recruits committed to the expanding stem cell program.**
- **Provide high-quality dedicated core resources.**
- **Enhance the program's teaching capabilities.**
- **Provide ample space for visiting researchers.**
- **Enhance outreach activities to patients, patient advocates and the public**.

Described below are the ways in which our project addresses the CIRM evaluation criteria of **value**, **leverage**, **urgency**, **shared resources,** and **functionality**.

Value: UCI has a long history as a leader in the design and construction of cost-effective research buildings having completed six wet laboratory buildings since the year 2000. Our proposed project is modeled on the design of one of UCI's recent, very successful biomedical research buildings with slight modifications to make the design ideally suited to stem cell research. This strategy maximizes cost-effectiveness by reducing design costs and accelerating the project schedule while at the same time providing a proven laboratory design. The location of the building in the Biomedical Research Center places it at the epicenter of biomedical research on the Irvine campus, in close proximity to key collaborating programs and resources.

Geographically the UCI campus sits at the heart of Orange County, the second most populous county in the State. The stem cell research program at UCI was recognized in Part I of the application as one of the strongest in the state. Consequently, placing an Institute in the heart of this large population and embedded in an institution with an outstanding program in regenerative medicine makes sense. Easy access to airports (John Wayne Airport is <10 minutes) encourages visitors from around the nation and overseas.

Cost and Innovation: The proposed project features a number of innovative and cost-effective design features that enhance its value. Among these features are **use of design-build delivery** to reduce cost and increase speed to completion, **use of an existing design** as a starting point for the proposed building, incorporation of **open laboratories** embedding flexibility and adaptability, **use of a structural system that doubles as the exterior cladding of the building** that requires no major maintenance for 75 years and operates as part of the building's thermal system, **separation of the building's office and laboratory wings** reducing construction costs for non-laboratory space, **sharing of site amenities and utilities** with adjacent buildings, and inclusion of **functional innovations** such as the integration of research and clinical space. The cost of the proposed building is in the range of other UCI laboratory buildings currently underway, when building construction costs are adjusted to reflect the same timeframe as the Stem Cell Building.

Sustainability: UCI is committed to sustainable building and infrastructure design and has demonstrated leadership and innovation in this area for many years. The Stem Cell Building project will require that the design-build teams submit design proposals that achieve LEED Silver certification standards at a minimum, while striving to achieve Gold standards.

Leverage: Leverage for this project is $16,057,400, representing a .43 ratio of leverage to CIRM funds. Funding sources for leverage include committed gifts, campus debt, and foundation support.

In addition to the formal leverage funds, the campus previously purchased over $1.5 million of the $2.3 million worth of equipment in the Stem Cell Research Center (currently located off-campus). The equipment is detailed in Section 6F. Because it was purchased prior to August

24, 2007, it is not included as leverage, but it was purchased specifically in preparation for a new building, The campus will also provide start-up funds of $600-$750k for each of the six new faculty positions committed to the program, four of whom are anticipated to be hired by building opening. Although a significant portion of these start-up funds will be used for equipment within the proposed building, these items are not included in the project budget because the equipment items cannot be specified until the faculty are hired.

Urgency: By using the design-build process, the CIRM Institute for Stem Cell Research at UCI will be complete within 24 months after grant award. UCI has done extensive preliminary work and is positioned to move forward quickly when CIRM approves funding. The preliminary design of the Stem Cell Building has been completed, as has the required environmental impact documentation, both of which were approved by The UC Regents in July 2007. With three design-build teams already pre-qualified to bid on the project, the campus intends to initiate the bid process immediately upon funding approval, and complete the project by July 2010. UCI's proven track record for on-time and on-budget project completion substantiates our ability to perform on this schedule. All of the six wet laboratory buildings constructed by UCI since the year 2000 have been completed on schedule, with Hewitt Hall, the model for the design of the proposed project, constructed within 23 months.

Shared Resources: To enhance efficiency, we will establish state-of-the-art Core Facilities within the new building that will act as a "super-magnet" to attract researchers to the Stem Cell Research Center. Cores will include Stem Cell Culture, Videoconferencing, Clinical, Human Performance, and Regulatory.

Augmenting the space in the new building, the campus has a broad array of interdisciplinary and collaborative programs that contribute significantly to the Stem Cell Program. Each has an established home near the proposed building and will provide services and research support vital to the Stem Cell Program. They include the Roman Reed Core Laboratory, the Reeve-Irvine Spinal Cord Injury Research Center, the CIRM-funded Stem Cell Vivarium, the Transgenic Mouse Facility, The Institute for Brain Aging and Dementia, the John Tu and Thomas Yuen Center for Functional Onco-Imaging, the Institute for Clinical Translational Science, the Center for Diabetes Research & Treatment, the UCI Research Imaging Center, the Beckman Laser Institute and Clinic, the Laboratory for Fluorescence Dynamics, and the Clinical Spine Initiative. In all, these programs represent over 75,000 ASF of space with an equipment value of over $100 million, supplementing the facilities in the CIRM-funded building,

Functionality: The proposed building will house a stem cell research program that encompasses all three aspects of regenerative medicine, namely, a basic and discovery research program, a preclinical research program, and a preclinical development and clinical research program. The facility is designed to create a physical and intellectual environment that promotes interaction and the creation of multi-disciplinary research teams while at the same time being flexible enough to adapt to emerging research needs or technologies. Importantly, the building provides space to house UCI's leading stem cell researchers, and the six new faculty recruits recently committed by the campus to expand the stem cell program.

The research and clinical floor plans contain large and small rooms to accommodate evolving functional needs. Each lab has immediate access to both wet and dry isolated rooms, fume hoods, sinks, benches and storage. All labs have access to Core Facilities within the building.

This new building project inherently aligns with CIRM's evaluation criteria. Our intention is to rapidly provide, with the help of CIRM funding, a CIRM Institute for Stem Cell Research that truly is, in the words of the Review Summary of Part I of the building grant application, '*an ideal atmosphere for a stem cell scientist who wishes to collaborate with the best in the field*.'

Section 2. Mandatory Requirements

A. Non-profit Status

The University of California is a non-profit public-benefit corporation classified as a 501c3 corporation by the Internal Revenue Service. This determination was made for the Irvine campus in 1968 and confirmed in April 2007.

B. Private Business Use of Facility

The proposed Stem Cell Building will include core laboratory facilities that will serve as a regional resource for other institutions and the private sector. Private use might take three forms; companies placing new equipment for demonstration or testing, companies working with researchers on collaborative projects or companies using core laboratory equipment on a recharge basis allowing the SCRC to recapture costs. Before we allow any private use, we will seek the counsel of CIRM and the UC Office of the President to make certain that activities are fully compliant within IRS guidelines. UCI's Budget Office will evaluate the final recharge plan for conformance to University policies and IRS regulations prior to opening of the building.

C. Prevailing Wage Requirements

In accordance with California law, it is the University of California's policy to pay prevailing wages on all construction and maintenance contracts that exceed $1,000, are located within the state, and for which any portion of the funding is furnished by the state. Pursuant to this policy, UCI will pay prevailing wages for all labor on the Stem Cell Building.

D. California Goods and Services

UCI has a three-point plan to attain the goal that at least 50% of the CIRM-funded project expenditures be directed to California suppliers of goods and services in the construction of the Stem Cell building.

Services

Labor used in the construction of this facility constitutes approximately 40% of the construction cost. With minor exceptions, all labor provided will be from California-based contractors. UCI has already prequalified three architect and engineering/general contractor design-build teams, all of whom have a major presence in California. Furthermore, UCI has prequalified the major subcontractors (mechanical, plumbing, electrical) and all are based in southern California.

Materials

The engineering staff of UCI Design and Construction Services has researched California manufacturers of mechanical, plumbing, electrical, laboratory and architectural components that can be incorporated into the Stem Cell Building. UCI intends to list California manufacturers of these items in the bidding specification. The list below includes components that have been identified to date.

Architectural
Insulation
Waterproofing
Steel doors & Frames
Aluminum Entrances & Storefront
Exterior Cement Plaster
Gypsum Board
Non-Structural Metal Framing
Carpet
Paint
Environmental Rooms

Electrical
Conduit
Interior Light Fixtures
Exterior Light Fixtures and Poles
Grounding Systems
Overcurrent Protective Devices

Plumbing
Pressure Gauges
Hosebibbs
Back Flow Prevention Devices
Flow Limiting Devices
Water Meters
Plumbing Valves
Fire Hydrants
Fire Department Connection Devices
Precast Concrete Vaults
Couplings
Area Drains
Pressure Reducing Valves

Mechanical
Boilers
Automatic Flow Limit Devices
Automatic Control Valves
Pressure Sustaining Valves
High Pressure Regulator Valves
Heat Exchangers
Unfired Steam Generators
Computer Room Air Conditioning Units
Gauges
Seismic Supports & Vibration Isolators

Additionally, the Stem Cell Building will have a concrete shear wall structural system. The concrete used for this structural system will be produced in Irvine, California and constitutes approximately $2,000,000 of the construction cost.

Bidding

UCI does not award construction contracts solely based on price but evaluates bids for best value based on predetermined criteria. As part of the criteria, UCI intends to award points to teams whose proposals indicate the use of California manufacturers, suppliers, material and services. Full points will be awarded for achieving CIRM's goal.

We are confident that, with the above plan, and working with our design-build teams, we can achieve the goal that at least 50% of the CIRM-funded project expenditures be directed to California suppliers.

Section 3. Program & Project Description

A. Program objectives

The overarching goal of the Stem Cell Research Program at UCI is to pursue the most exciting and promising avenues in stem cell research in order to develop revolutionary new therapies, diagnostics, and technologies to treat a variety of human diseases and disorders. If the stem cell field is to achieve these important goals, it will likely require the creation of a new paradigm in research in which basic scientists from disparate fields work together with clinicians to move fundamental discoveries into testing in animal models and then, in turn, take the most promising of those results into testing in clinical trials prior to use in patients. Since few laboratories have the expertise or resources to carry basic research findings from the bench to the bedside, it seems likely that this research trajectory will be carried out by teams of scientists and clinicians working together to tackle the most critical problems in this field. If successful, such an approach could revolutionize the way human diseases and disorders are treated in the 21st Century. Critically, success will result in relief of suffering and financial burden for many patients and their families in the State of California.

UCI is extremely well placed to tackle the major hurdles in the stem cell field. UCI has a long history of research in regenerative medicine and developmental biology, centered around key individuals who have made seminal discoveries on pluripotent stem cells and the understanding and treatment of human disease. Stem cell research on campus has grown, and continues to grow, through substantial institutional commitment, emphasis on stem cell research within the strong developmental biology research community, on-going external recruitment, robust industrial collaborations, valuable input from the patient-advocate community, the support of community leaders, and local philanthropy. Scientists at UCI pioneered the field of regeneration, the development of pluripotent stem cells, large-scale production of specialized cells with very high purity, and methods for using such cells to treat damaged tissues. Treatment of spinal cord injury patients with cells derived from **human embryonic stem** (**hES**) cells developed at UCI will likely be the subject of the first hES-based clinical trial in the United States. This first trial will create a new paradigm, distinct from existing systemic stem cell-based transplantation, and as such will inform the design of future trials. A major institutional commitment of six new faculty recruits provides the means to expand this program of stem cell research and regenerative medicine. This confluence of excellence of research in stem cell biology at UCI (which has garnered $21.5 million in CIRM funding to date) together with the capacity for programmatic growth provides a unique opportunity to create a **CIRM Institute for Stem Cell Research** based in Orange County, the second most populous county in California.

Summarized below are the program goals underlying the need for the proposed Stem Cell Building and the increased research capabilities that will be achieved as a result of this project:

Consolidate stem cell research on campus allowing creation and nurturing of multidisciplinary disease teams. Currently the stem cell research program is spread across the UCI campus as well as in leased space off-campus. We strongly believe that the research paradigm described above, namely the creation of multidisciplinary disease teams, is likely to be the one that advances this field towards the goal of "***discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury***". The strength of multidisciplinary disease teams will be greatly enhanced through frequent interaction that results from being in the same location. Basic stem cell researchers need to understand the challenges of treatment of human disease and clinicians need to understand the limitations and possibilities that stem cells bring to the table. Both parties will likely need the help of bioengineers, systems biologists, materials scientists,

chemists, physicists, etc. to fill vital gaps in their knowledge or expertise. Quite simply, this is best done by putting all of the respective stakeholders in the same location, where they can talk every day, collaboratively address the problems they seek to overcome, and share the technologies they each bring to bear on those problems. The Stem Cell Core Facilities, described below and in Section 4, will create a supportive environment enabling all aspects of stem cell research. By providing dedicated clinical space in the building, with all of the resources to see patients and perform clinical studies, basic scientists will be connected to the vital application of their work, and opportunities will be created for meaningful interactions between each of the elements of the program: basic research, translational research and clinical research.

Provide needed space for existing stem cell faculty, in addition to six new faculty recruits committed to the expanding stem cell program. The stem cell research program at UCI is growing rapidly and established investigators in fields from developmental biology to bioengineering are continually moving into stem cell related work. Additionally, six new faculty positions have already been committed by the campus, along with significant campus resources and support. This commitment, in salaries and start-up packages, worth approximately $17.5 over the next ten years, will allow a major expansion of the program, and the ability to expand and move forward research on non-federally approved cell lines. There is currently no laboratory or office space available for these new investigators. The new Building will provide a stimulating and supportive home for their research programs, by comingling experienced and junior researchers, basic, preclinical, and clinical scientists, all utilizing a wide array of tools and techniques to address problems in stem cell science.

Provide high-quality dedicated core resources. The building will house the Stem Cell Core Facility including the CIRM-funded Shared Research Laboratory to serve the needs of all investigators. The Core Facility is equipped with state of the art equipment for hES stem cell line derivation, cell culture, differentiation and purification, and cell, tissue and whole body imaging. Staffing for the core facility will be provided, in part, through the existing Stem Cell Emphasis Track of the UCI Masters Program in Biotechnology as part of their intensive hands-on training, thus providing free, highly experienced technical support for all aspects of stem cell research. The building will also include dedicated clinical space, with all of the resources to see patients and perform clinical studies. Providing such space within the building will serve to connect the basic scientists to the vital application of their work, and at the same time create opportunities for meaningful interactions between each of the elements of the program: basic research, translational research and clinical research. The facility will also become home to the existing Stem Cell Regulatory Core, which ensures US Food and Drug Administration (FDA) compliant development of preclinical projects well prior to the mandatory FDA review stage at clinical trials, thus streamlining the progression from bench to clinic. Such resources will enable many researchers to enter the stem cell field without prior experience with stem cells or regenerative medicine. The opportunity to create a facility with space specifically designed to train the stem cell researchers of the future will significantly enhance the training mission of the program. We expect that these facilities will not only serve UCI but also our regional partners at UC Riverside (see attached letter of collaboration) as well as visitors from around the nation and overseas.

Enhance the program's teaching capabilities. The teaching activities of the stem cell research center are currently ongoing and severely stretched for space. We seek to improve our capabilities for teaching the next generation of young scientists since they will likely be the ones who fulfill the promise of regenerative medicine. The building will provide new opportunities for students and faculty to expand and enrich training in stem cell science and technology through

existing programs: the **CIRM Training Grant**, the Stem Cell Emphasis Track of the Masters Program in Biotechnology and the **CIRM Stem Cell Techniques Course**. The proposed facility contains conference rooms and interactive research spaces adequate for these courses on the first and second floors. It will provide the permanent home for the Stem Cell Techniques Course and the Stem Cell Emphasis Track of the Masters Program in Biotechnology. In the last 18 months these existing courses, have trained over 60 scientists from UCI, our partners at UC Riverside and elsewhere. In the new building, we will train the next generation of researchers and research technicians in state of the art facilities with the capacity for worldwide teleconferencing.

Provide ample space for visitors. A large potion of the office and laboratory space on the first floor has been reserved for visiting scholars to come for extended periods and interact with the building residents on CIRM-funded and other stem cell research projects, and participate in the educational activities of the Institute. To date the SCRC has hosted visitors from the United Kingdom, the Federal Republic of Germany and Israel, as well as from across the region. We expect this trend to continue and to increase. Investigators will have the opportunity to both learn from and inform the best and most promising visiting scientists from across the region and the world. Space will also be provided to showcase and demonstrate new technologies developed in-house and by industrial collaborators.

Enhance outreach activities. The facility will serve as a site for researchers, clinicians, the patient advocate community and the general public to engage in thoughtful discussions of social/ethical issues connected with this field. The building will become the hub of existing outreach activities including “Stem Cells and Society” meetings jointly organized by the Schools of Biosciences, Medicine and Humanities. This meeting series seeks to stimulate a discourse between experts in stem cell biology and regenerative medicine and members of the lay public. The goal of the series is to address the ethical, moral and legal issues in this field. Another series, “Researcher, Physician, Patient” organized by the stem cell research program promotes discussions that highlight specific diseases. The goal of this series is for patients to describe the day-to-day challenges they face, clinicians to describe the state of the art for treatment and for stem cell researchers to explain the possibilities that stem cell research may bring.

The building will also host the activities of the International Student Society for Stem Cell Research and the Stem Cell Research Center Patient Advocate Committee (PAC). Importantly the PAC, which includes representatives of Alzheimer’s Disease, Multiple Sclerosis, Spinal Cord Injury, Blindness, Huntington’s Disease and others, informs all the activities of the stem cell research program. The building includes interaction areas for informal discussions and rooms for formal scientific interactions, teaching, and outreach. Providing opportunities for scientists from different disciplines to talk and learn each other’s languages will aid in overcoming the major challenges of stem cell biology. If the opportunity for scientists, clinicians, patient advocates, and members of the lay public to interact is provided, the fundamental questions important to each of these key shareholders will be fully understood and adequately addressed.

How the project benefits stem cell research. In order to create the physical space and intellectual environment for multidisciplinary research, teaching and outreach, we propose here the creation of a state-of-the-art building dedicated to stem cell research and regenerative medicine. The opportunity to construct a new facility on a campus noted for the strength of its stem cell research program will create an exceptional CIRM Institute for Stem Cell Research capable of tackling the major hurdles in regenerative medicine eventually leading to the development of new treatments for human diseases and disorders.

The CIRM Institute for Stem Cell Research will focus basic, preclinical and clinical efforts on moving fundamental discoveries through to development of new treatments, particularly for neurological/neurodegenerative disorders and metabolic disease. To achieve the goals of our program, the building is designed with flexibility to adapt to emerging trends and technologies in all aspects of research and to provide space for investigators to create and work together in multidisciplinary teams. The Building will provide space for a core group of investigators with a strong history of research in stem cell biology as well as for new faculty recruits who will form the next generation of researchers. Researchers from the Basic and Discovery and Preclinical Programs will be clustered in relation to disease focus and will be located near clinical researchers and clinicians in the Preclinical Development and Clinical Research Program with goal of fostering collaborative teams. We anticipate that such interactions between basic, preclinical, and clinical investigators will result in cross-pollinating innovation.

The researchers housed in the Building will also have easy access to Core facilities complete with equipment and technical expertise to support all aspects of stem cell research. In addition, the Building will provide flexible "hotel" space for investigators from UCI and our regional partners to perform pilot studies. State-of-the-art shared facilities will include flexible space for companies to place and test new technologies. Experienced personnel trained in the use of the new equipment will streamline use by researchers. This will allow researchers to rapidly test, evaluate and use the latest technological advances to address fundamental questions. In short, we have planned the Building in such a way that any investigator in the basic or clinical sciences at any level can walk in the door with an idea that might lead to a new stem cell-based treatment for human disease and be provided with the physical resources, intellectual environment, and technical support to see that idea to fruition.

This CIRM Institute will be built in space within the heart of the campus' Biomedical Research Complex, adjacent to Hewitt, Gillespie and Sprague Halls. These buildings house dozens of faculty labs that focus their research in topics of great relevance to stem cell research, such as the neurosciences, cancer, metabolic diseases and immunology, as well as the Institute for Clinical Translational Science, UCI's clearinghouse for human participant based research. In addition, within a walk of a few minutes are buildings devoted to research across the life sciences, medicine, physical sciences, biochemistry and bioengineering. The confluence of resources includes a large number of research cores and facilities that would add enormous value to a new stem cell building. A number of these shared resources are described in Section 4, with a map illustrating the location of several key cores proximal to the planned new facility on page 12.

The Stem Cell Building will be the hub of all stem cell activity on campus. Interactions will be both formal and informal, with clinical, preclinical and basic researchers in the building sharing research space, didactic lecture times, resources, and coffee time chat space. Center-wide lecture series, monthly town hall style meetings and disease specific focus groups will provide a framework for formal interaction. However, for those in the building, informal interactions have the potential to be particularly profitable, as some of the best experiments have been designed over a cup of coffee. The Building is designed to exploit this by providing inviting informal interaction spaces strategically located to foster communication among researchers from diverse disciplines and foci.

The *raison d'etre* for the new Institute will be to help fulfill a common goal of CIRM and the Stem Cell Research Program at UCI, namely to carry out the mandate of the people of the State of California to develop new treatments for human disease based on the use of pluripotent stem cells.

B. Need for the project

Our central goal in planning the Stem Cell Research Building was to address the program needs for stem cell research in the most efficient, effective and affordable manner possible. Our proposed solution utilizes the design of a recently completed biomedical research building as the basis for the new Stem Cell Building. With a few planned modifications based on input from the UCI stem cell community, this design ideally addresses all of the Stem Cell Program's needs while accelerating the project schedule and reducing costs.

Current stem cell research efforts at UCI, despite their successes, are significantly hindered by their dislocation. The primary facilities for the Stem Cell Research Center are located off campus in leased space. Faculty laboratories and offices are scattered among a number of buildings on the campus; in some cases researchers are working in borrowed laboratory space. Laboratory space on the campus is at a premium—although UCI has an extremely active building program, the campus is one of the fastest growing in the UC system, adding nearly 9,500 additional students and over 500 faculty in the last decade, and construction has not been able to keep pace with this level of enrollment and program growth. Construction of a new building dedicated to stem cell research is essential to meeting the facility needs and program objectives of the Stem Cell Research Center

The proposed Stem Cell Building will advance stem cell research at UCI by achieving a number of program-related objectives, including the following:

- It will consolidate researchers from a variety of fields, departments, and schools at UCI.
- It will serve as the hub of all stem cell activity on the Irvine campus, streamlining the process of discovery and development of cures, therapies, diagnostics and research technologies.
- It will keep the research program nimble, as the flexibility of its design will provide the ability to adapt to emerging trends and technologies in all aspects of research, and provide space for investigators to work together in interdisciplinary teams.
- It will facilitate the continued growth of stem cell research by providing space for experienced faculty who have made major contributions in the stem cell field and who will serve as "key investigators" around which new faculty members will be recruited. These core investigators will occupy laboratory space adjacent to new junior recruits, allowing them to provide mentorship and intellectual support to ensure the success of the younger investigators.

Value provided: One of the most basic requirements of the stem cell research program is for flexible wet laboratory space—a requirement that is consistent with the needs of biomedical research in general. The campus has spent more than a decade perfecting flexible open laboratories in the Biomedical Research Center (BRC) area of campus through the construction of three such buildings. The current proposal takes advantage of, and builds upon, this expertise by using the design of the last BRC building, Hewitt Hall, completed in 2003, as the model for the proposed new Stem Cell Building. This strategy results in a number of advantages: it lowers project design costs, it provides a design and layout of wet laboratory space that required only minor modifications to make it entirely suitable for stem cell research, and it provides an excellent ratio of office-type space that can meet the needs of the program for not only offices, but also for clinical space, and training and interaction space.

The proposed location of the new building in the BRC also is ideal. The BRC is the epicenter of biomedical research on the Irvine campus, and the Stem Cell Research Center's location there will place it in close proximity to key collaborating programs and resources such as the

Beckman Laser Institute, the Center for Onco-Imaging, the Institute for Clinical and Translational Science, the Center for Molecular and Mitochondrial Medicine and Genetics, the Reeve/Irvine Research Center, the Institute for Brain Aging and Dementia, and the CIRM-funded Shared Research Laboratory Vivarium.

The proposed location also has some important advantages that make it an ideal site for a CIRM Institute. First, it is located within ten minutes of a major airport, John Wayne Airport. For visitors from around the nation or overseas this is an attractive venue lacking the congestion and flight delays associated with other airports and we have found that has greatly facilitated our interactions with visitors from around the world. Second, the Arnold and Mabel Beckman Center of the National Academy of Sciences is located immediately adjacent to the UCI campus. This purpose-built venue with state-of-the-art conference facilities and staff provides the possibility for conferencing in a facility run by an organization whose name and reputation is known around the world. The Beckman Center regularly holds conferences of interest to the regenerative medicine community, such as the recent Sackler Colloquium of the National Academy of Sciences on "Therapeutic Cloning: Where do we go from here?"

The proposed building is the best solution for providing a facility that accommodates basic, preclinical, and clinical research activities. It provides a mix of individual research laboratories, clinical space, and shared facilities for research and training in a manner that provides the critical mass necessary to serve as the central hub for all stem cell research at UCI. A facility designed in this way will serve as the ideal environment in which basic research discoveries can be evaluated and accelerated towards clinical trials.

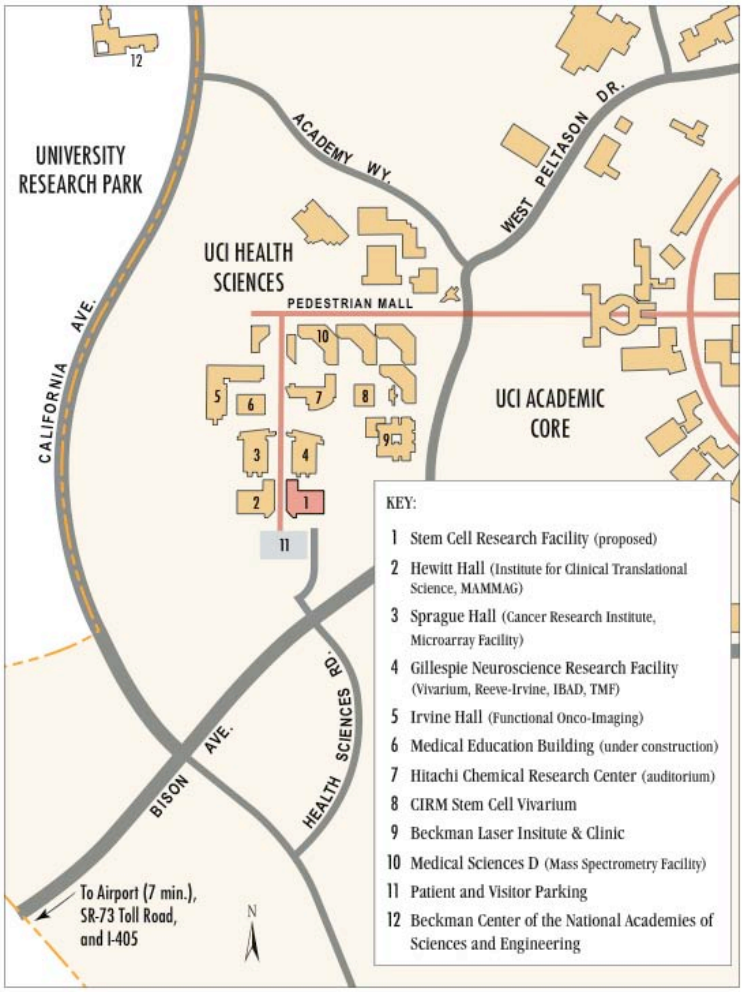


Figure 1: Location of the Proposed Building in relation to other relevant resources on the UCI campus

Alternatives Considered:

Alternatives to constructing new space for UCI's stem cell program would not meet the program's goals and promote scientific advancement. There is no space available on the

campus for assignment to the Stem Cell Research Center (SCRC), and, although the current 10,000 SF SCRC facility has been adequate to establish the program, it has no capacity for growth in its current leased location in the University Research Park. The building that the SCRC occupies in the Research Park (owned and operated by the Irvine Company) is the only wet laboratory building in the entire development, and it is currently fully occupied by biomedical research programs that are not scheduled to move in the foreseeable future. There is one space that is currently not rented by UCI and if this space were to become available, it would provide less than 5,000 ASF of laboratory space, which is inadequate to achieve the Stem Cell Research Center's program goals. While a few other alternatives exist for leasing wet research space in Orange County, this option would not serve to advance stem cell research efforts since they would further distance the stem cell effort from the campus. The location of these leased buildings miles away from campus would exacerbate the fragmentation problems that already are hindering UCI's stem cell research efforts. Moreover, many of the faculty who would be assigned stem cell research space in such a facility would also maintain laboratory space on campus for their other, non-stem-cell research endeavors. Traveling on a daily basis between laboratories separated by miles would be burdensome, inefficient, and environmentally undesirable, and would negatively impact not only the research, but also recruitment and retention of top-class faculty. Further, available lease space does not provide the vivarium facilities and other specialized spaces vital to stem cell research.

Collaborating with other institutions to get access to the necessary facilities also is not a viable alternative. While the Stem Cell Research Center does have collaborative relationships with a number of other Southern California institutions, including UC Santa Barbara, UCLA, USC, and UC Riverside, using facilities at these institutions rather than building space on the Irvine campus is not feasible because of the scope of our needs and the prohibitive distance. UC Irvine's program is home to a high density of stem cell researchers who require adequate, permanent space for their research, not merely occasional use of shared facilities. Their needs would overwhelm the capacity of any host institution. Further, all of the partner institutions are at a substantial distance—an hour or more driving time—that precludes regular or efficient travel to use their facilities. It would be impossible to maintain the quality of UC Irvine's stem cell program and retain its current caliber of researchers if it were necessary to rely on the use of research facilities at a partner institution. Interactions with industry, vital to the commercialization of stem cell-related technologies, are inevitable, as Orange County is the nation's leader in number of medical device companies, and is located in the region with the second largest concentration of pharmaceutical and biomedical research jobs outside of the New York Metro area. Moreover, the program will serve Orange County, the second most populous county in the State of California. To locate the research in another county would unquestionably result in immense difficulty in serving this large population group.

C. Project Description.

Construction of the proposed Stem Cell Research Building would greatly enhance stem cell research capabilities at UC Irvine by providing a wet research laboratory facility of 38,907 ASF (61,575 OGSF)—a comprehensive facility that would allow the campus to avoid potential conflicts with federally funded research. The building would support all three aspects of UCI's stem cell research program, providing 13,135 ASF for Basic and Discovery research (element X), 9,813 ASF for Preclinical research (element Y), 6,237 ASF for Pre-clinical Development and Clinical Trials (element Z) and an additional 9,722 ASF of shared space. A summary of proposed space by program element and space type is provided in the table below.

University of California, Irvine
Proposed Stem Cell Building
Summary of Space by Type and Program Element

	Element X: Basic Research	Element Y: Preclinical Research	Element Z: Clinical Research	Shared Space	Total ASF
Research Space					
Research Laboratories	6,831	4,807	2,024		13,662
Research Laboratory Support	4,274	3,896	1,114	3,240	12,524
Core Laboratories and Support				3,452	3,452
Subtotal - Laboratory ASF	11,105	8,703	3,138	6,692	29,638
Clinical Research Space			2,204		2,204
Dry Research Space				1,480	1,480
Subtotal - Dry Research ASF	0	0	2,204	1,480	3,684
Total - Research ASF	**11,105**	**8,703**	**5,342**	**8,172**	**33,322**
Office Space					
PI Office Space	2,030	1,110	740		3,880
Administrative Office and Support Space	0	0	155	1,550	1,705
Total - Office ASF	**2,030**	**1,110**	**895**	**1,550**	**5,585**
Total - Stem Cell Building ASF	**13,135**	**9,813**	**6,237**	**9,722**	**38,907**

The Building consists of three floors. The main entrance, located close to convenient patient and visitor parking, leads to a patient waiting room and reception area that serves as the nexus for clinical offices, teaching areas, the Stem Cell Core, and flex research space for visiting researchers located on the first floor. An additional entrance located equally close to parking gives access to the first floor clinical offices and an interior stairway and elevator that lead to the clinical offices located on the second floor. In addition to the clinical offices serving the ophthalmology clinicians, research space and offices for 6 basic, preclinical, and clinical researchers is located on the second floor. These researchers include Dr. Hans Keirstead, a Co-Director of the Stem Cell Research Center, Dr. Tom Lane, a CIRM-funded Professor, and four new faculty recruits. Research and office space for 5 basic, preclinical, and clinical researchers is located on the third floor. The planned occupants include Dr. Peter Donovan, a Co-Director of the Stem Cell Research Center, Maike Sander, M.D. a CIRM-funded diabetes researcher, Dr. Douglas Wallace, a CIRM Comprehensive Grant Awardee and 2 new faculty recruits. Drs. Lane, Sander, and Wallace will expand their stem cell programs into the space during the course of their projects, whereas Drs. Donovan and Keirstead and all new faculty recruits will have their entire laboratories located in the building.

Project Concept and Basis for Space Allocations: The design and interior layout of the Building is modeled after another successful research building—Hewitt Hall, completed in 2003. Hewitt Hall is the third generation of recent research buildings constructed in the Biomedical

Research Center, with each building benefiting by lessons learned from the one before. This effort has been very successful—researchers in Hewitt Hall, including several senior stem cell researchers who will be assigned space in the proposed new Stem Cell Building, have been very satisfied with the functionality of the laboratories, the layout of the space, and the proportion of laboratory support space, with only minor changes to the Hewitt Hall laboratory design needed to provide optimal research space in the new building. Furthermore, the Hewitt Hall model also provides an office wing that is adapted easily to other programmatic requirements of the stem cell research program, including needs for clinical research space, interactive research/seminar/meeting space, and offices for investigators and Stem Cell Center staff. Starting with this basic concept of replicating Hewitt Hall, the Stem Cell researchers, in consultation with the campus Design & Construction Services office, planned the modifications required to address the space, functionality, and interactivity needs of the basic, pre-clinical, and clinical program elements. The result is a building program optimized to serve as the hub of stem cell activity on the Irvine campus.

Space Program Summary: The building will be flexibly designed to efficiently accommodate changes in the research program over time, with planning based on an open laboratory module that can accommodate a variety of research activities. Approximately 16 principal researchers and their teams (11 laboratory-based and 5 clinical researchers) as well as up to ten visiting scientists would be accommodated in the building. Core facilities that would serve as a central campus resource and a regional resource for other academic institutions and the private sector would also be provided.

The proposed project will provide wet laboratories and support space, clinical research space, and dry research areas, and office and administrative space, as described below:

- **Research laboratories for individual faculty (13,662 ASF):** Research laboratories in the proposed building are planned as open laboratories to promote interaction and exchange of ideas among researchers and to allow for flexibility and ease in future reassignments and modifications. The laboratories on the upper floors will provide approximately 10,200 ASF for eleven principle investigators, including five current faculty members and six new recruits. In addition, approximately 3,500 ASF on the ground floor will be provided to accommodate up to ten visiting scientists or collaborative teams. Assignments are planned to maximize proximity and interactions among accomplished, senior investigators and new recruits in order to foster mentoring relationships, which will help ensure the success of the junior faculty and hasten their productivity.

  The open laboratory area is planned on an 11-foot by 30-foot module, and will include both wet and dry benches as well as alcoves for fume hoods. Fixed benches will be provided on one side of each module, leaving open space on the opposite side that can be equipped later with more fixed benches, movable benches, tables, workstations or floor-mounted equipment, thus maintaining maximum flexibility to accommodate a wide range of researcher needs. Laboratory utilities available at the benches will include domestic hot and cold water, natural gas, vacuum, and purified water. The building's vibration criterion of 2,200 micro inches per second will support bench research using imaging and microscopy. The laboratory areas will be equipped with six fume hoods per floor, with the capability for providing an additional two hoods per floor to accommodate future growth. This level of density results in a ratio of one fume hood for every 2,000 gross square feet of laboratory space, which is consistent with the fume hood density in other recent biomedical research buildings constructed at UCI. Equipment alcoves adjacent to the laboratories will provide space for equipment such as freezers, incubators, and centrifuges, thus allowing more usable bench space in the main laboratories. Design features of the laboratory areas will include direct natural light,

adequate workspace, a coordinated and well-organized layout, and attractive and functional casework, providing a pleasant and stimulating work environment that will aid in the recruitment, retention, and productivity of the researchers.

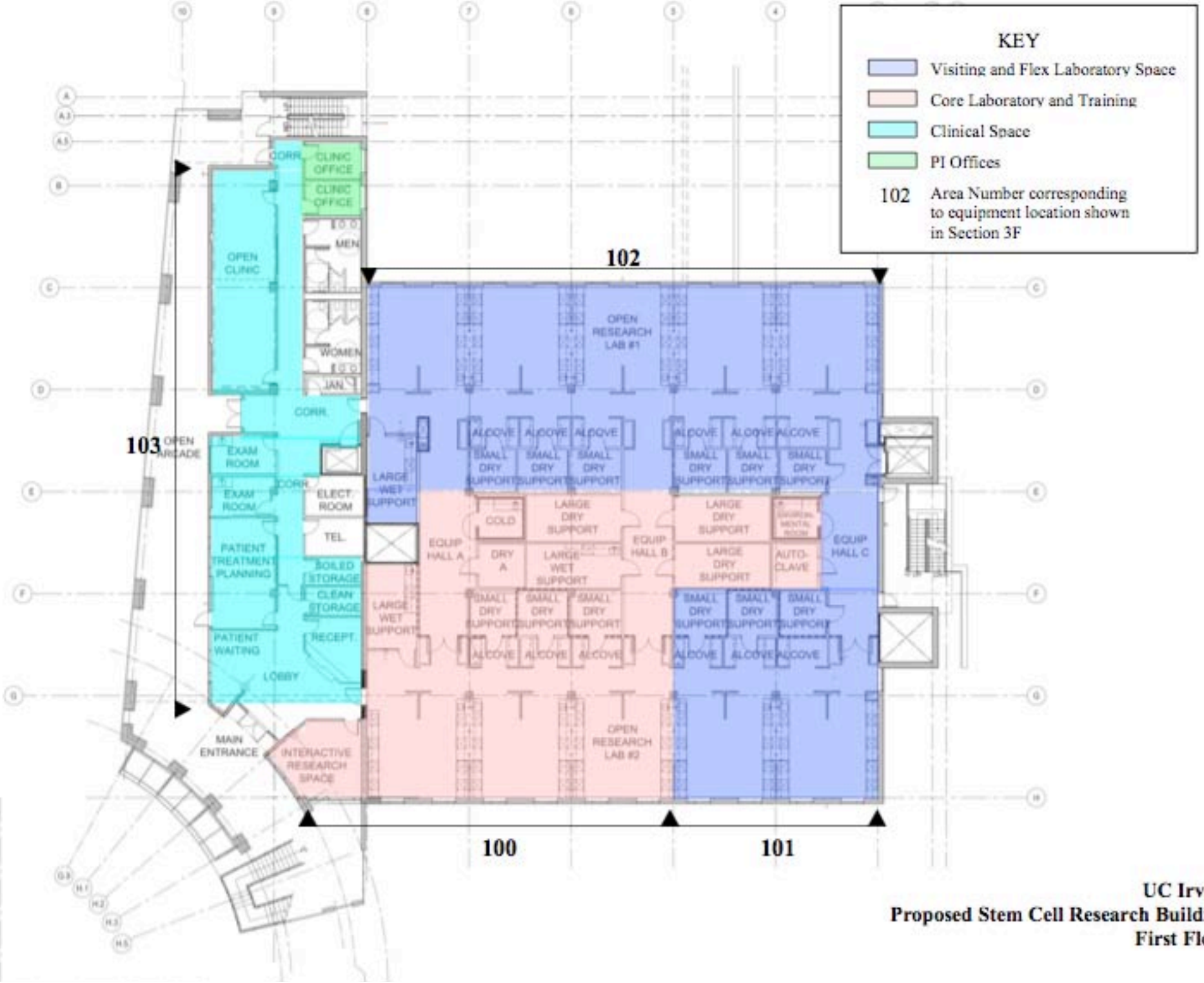
- **Core laboratory space (3,452 ASF):** The core laboratories will provide centralized facilities that will serve as a regional resource for UC Irvine, other academic institutions, and the private sector. These laboratories will serve a variety of functions, including as the training center for the Center's technique courses for researchers new to the stem-cell field, and as a central culture area for growth of new cell lines for use in research, culturing and freezing hES cell lines, and providing quality control on cell lines and on reagents that will be made available to researchers. Core laboratory space will be similar in configuration and features to the research laboratory space.
- **Laboratory support space (12,524 ASF):** Enclosed laboratory support spaces will be provided in large and small sizes to accommodate various wet and dry support functions, including tissue culture rooms, equipment rooms, and instrument rooms. Included are enclosed rooms which can be darkened for microscopy. Wet spaces will be equipped with piped utilities and casework. Dry support spaces will have power for equipment and instrument use. In addition to the flexible wet and dry laboratory support rooms, several specialized support areas will be provided to accommodate environmental rooms and an autoclave/glasswash area. Of the total, 8,984 ASF will be allocated to individual researchers and 3,240 ASF will be for shared support.
- **Clinical research space** (**2,204 ASF):** Outpatient clinical space will be provided to accommodate stem-cell-related clinical investigations. Initially, this space will be devoted to programs investigating neuromotor and retinal disease, with small segments devoted to diabetes and mitochondrial disease. The proposed building will have all of the resources needed to see patients and perform clinical studies, including five patient examination and assessment suites, a patient treatment planning room, a neuromotor/gait lab, core patient sample handling facilities, wet and dry storage areas, and nursing staff support. With these additional facilities, the Stem Cell Research Center will be able to expand its Institute for Clinical and Translational Science (ICTS) transcranial magnetic stimulation laboratory, providing measures of neurophysiology relevant to many neuromotor and neurodegenerative disorders; provide a gait assessment lab, important to measuring patient function across diagnoses; and provide space for slit lamp eye examinations for ophthalmologic applications. These resources will be available to investigators in UCI's stem cell program and their collaborators, visiting scientists, and clinical researchers throughout the state.
- **Dry research space** (**1,480 ASF):** Facilities will be provided for research-related activities outside of the laboratories, including space for informal discussions, formal scientific interactions, teaching, and outreach. These facilities will provide opportunities for scientists, patient advocates, and members of the lay public to interact, and understand and address the questions important to each stakeholder group. Dry spaces to be provided include three interactive research rooms, one for each floor of the building, and a general conference room. The second-floor interactive research room will be equipped with a videoconferencing system to help facilitate collaborative interactions with partnering institutions and to augment the facility's training capacity.
- **Office and administrative space** (**5,585 ASF):** Office and administrative space will include 3,880 ASF for research offices to house faculty researchers (it is anticipated that other members of the research teams in the building will be housed in the laboratories)

and 1,705 ASF of administrative space to house Center staff, the Regulatory Quality Assurance Team, and provide a small amount of support space.

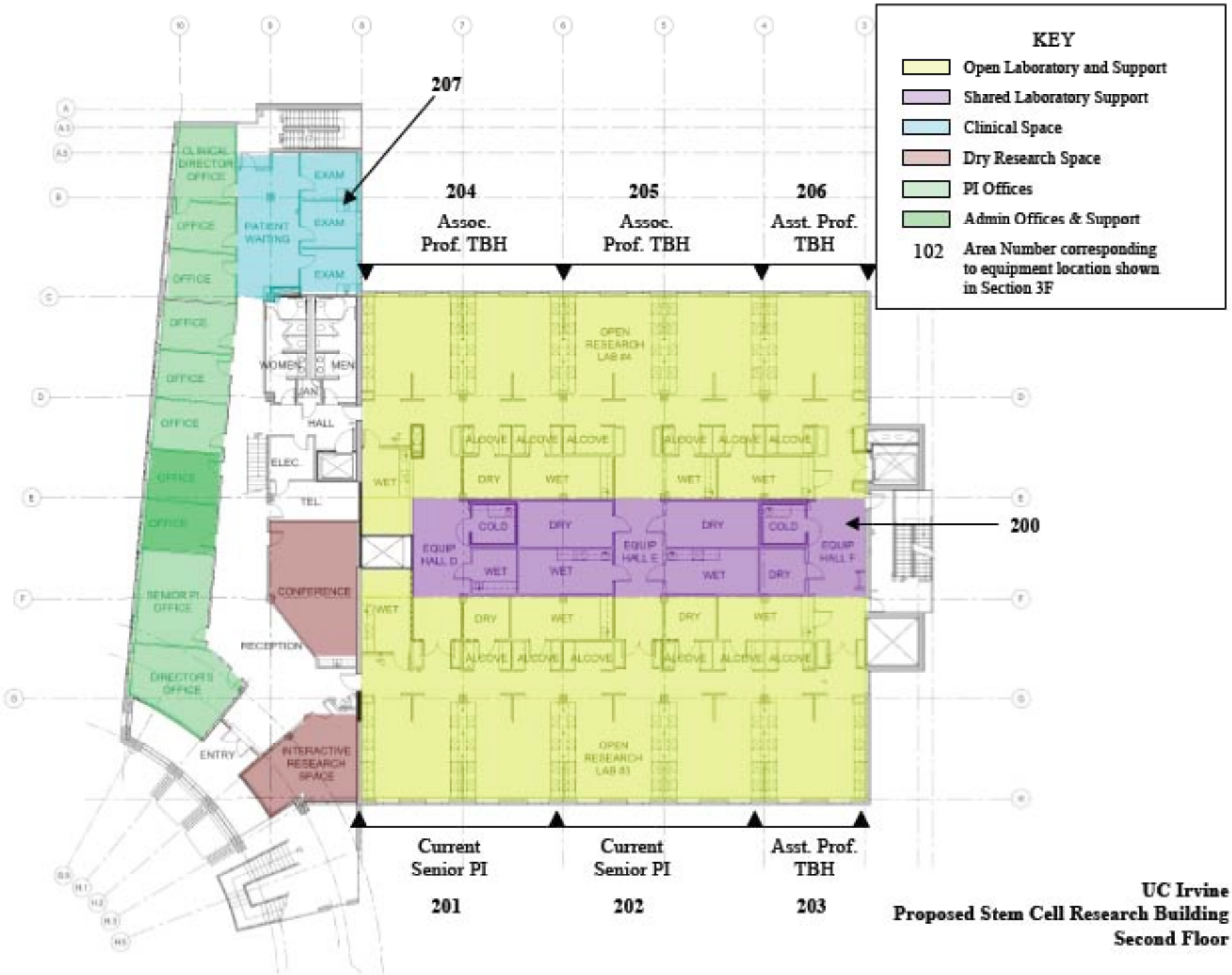
Occupancy of this building will result in the reassignment of some existing space, as described in detail in Section 3D of this proposal. There are no staging issues associated with the construction of the proposed building or the relocations from existing space.

Building Organization: Organization of occupants and activities within the proposed building have been carefully planned to maximize interaction among basic, pre-clinical, and clinical researchers, and among seasoned scientists and new faculty. By creating necessities for interaction between researchers across modalities the opportunities for meaningful dialog can be promoted. In turn this will help address the fundamental questions important to each of these stakeholders and help create and nurture the type of multidisciplinary research most likely to succeed in the field. The neuromotor/neurodegenerative and metabolic disorder clinical space, Stem Cell Core laboratories, visiting scientist lab space and teaching/educational space will be located on the first floor to foster a culture of interdisciplinary interaction and collaboration and to ensure ease of access to outside visitors and patients. Researchers on the upper floors will of necessity come down to use the core facility. Similarly, the retinal clinical, preclinical research, new faculty laboratory space, and the Regulatory core space will all be on the second floor in order to stimulate interaction, and facilitate progression of projects from the basic through preclinical to clinical stages. This arrangement will also serve to accelerate the assimilation of new faculty into the overall research program. The third floor will house the senior basic researchers, Stem Cell Research Center management and administrative offices, and be connected to the second floor via an internal stairway in order promote interactions between basic, preclinical and clinical investigators. By placing conference rooms on one floor and eating areas on another we will in effect be forcing people to move between the floors and interact.

A driving vision of the building design has been to create the necessity for people to move between floors and between cores and interact. In this way we hope to create both a physical and intellectual environment that can stimulate and nurture disease teams focused on developing new treatments for a wide variety of human diseases and disorders. The colored floor plans provided on the following pages illustrate this organization.



UC Irvine
Proposed Stem Cell Research Building
First Floor



UC Irvine
Proposed Stem Cell Research Building
Second Floor

UC Irvine
Proposed Stem Cell Research Building
Third Floor

Design Summary: The proposed Stem Cell Research Building will have three-stories, each consisting of a laboratory wing and an office wing. Each floor will have a complement of office space adjacent to the laboratory wing to maximize convenience for the researchers. The building is planned on a 22-foot structural module with an 11' x 30' laboratory module. The project will be designed based on the new building code which just took effect.

The building will be constructed of cast-in-place concrete utilizing shear wall construction. Exterior shear walls will serve both as the structural system and exterior building cladding. The building will be similar in form to the other buildings in the BRC, maintaining consistent floor-to-floor heights with adjacent buildings and employing predominantly flat roofs. The exterior materials for the building will primarily include architectural concrete, natural stone, glass, and pre-formed metal panels, with some tile and stone veneer as secondary materials. The facades of the building will develop surface articulation to provide architectural interest, provide a clearly identifiable entry to the building, and provide transparent street-level walls to invite pedestrian interest and discovery. To take advantage of the mild local climate, the building specifications will encourage use of arcades, loggias, solar shading, operable windows in the office areas (where practical), and natural daylight.

There are no unusual circumstances, conditions, or scope elements that will impose an undue burden on the project budget.

Site and Utilities: The proposed Stem Cell Research Building will be sited in UCI's Biomedical Research Center within the Health Sciences sector of the campus, south of the existing Gillespie Neurosciences Research Facility and east of Hewitt Hall. The building will be located along the existing pedestrian "mall" now bordered by Sprague Hall, Gillespie Research Facility, and Hewitt Hall (see map on page 12). The mall will also serve as the fire access to the building.

Although the proposed site for the Building is unimproved, its location adjacent to existing BRC buildings with their fully developed sites results in the need for relatively modest site improvements to complete the planned landscaping and hardscaping for the area and to extend utilities to serve the proposed building. Site improvements include constructing an entry plaza to the building that provides an appropriate transition from the exterior into the building lobby, completing the north-south pedestrian mall between Hewitt Hall and the proposed Stem Cell Building site, and providing pedestrian access to parking lots to the east and south of the site. In addition, the project also includes realignment of the access road to maintain full access to the area, and some work to the existing Gillespie Building loading dock/service area, which will also serve the Stem Cell Building, to maintain access during construction and to make the service area work efficiently for both the existing and new buildings. In addition to the plantings that will be provided around the proposed new building, landscaping will also be provided to acknowledge and continue the existing landscape design of the pedestrian mall.

Site utilities to be provided include sewer, domestic water, reclaimed water, chilled and high-temperature hot water, storm drain, natural gas, electrical, and telecommunications. Connections will be to existing utilities that currently serve the Gillespie Research Facility and/or Hewitt Hall and are located near the project site. The new building will use the existing electrical transformer and emergency generator at the Gillespie building.

Status of Environmental Review: A Tiered Initial Study/Mitigated Negative Declaration has been completed for the Stem Cell Building. At their July 2007 meeting, The Regents of the University of California, who must approve all new UC buildings, adopted the Mitigated Negative Declaration, Findings, and Mitigation Monitoring Program. This environmental documentation concluded that implementation of LRDP EIR mitigation measures applicable to all campus

construction projects, in combination with project-specific mitigation measures for air quality, would reduce all potential impacts to below a level of significance. Mitigation measures that were identified include air quality and water quality measures that are standard construction practice at UCI and throughout the state and do not significantly impact the construction budget for the project.

Accommodating Future Program Expansion: It is anticipated that the proposed Building will accommodate the Stem Cell Research Center's primary facilities needs for the next 5-7 years based on the growth of the University, the growing interest in stem cell research on campus and the timeframe in which biomedical research buildings become filled. In order to accommodate future program growth beyond this timeframe, the campus plans to include an alternate in the bid package for the proposed project to construct basement shell space at campus expense, outside of the scope of the building budget included in this proposal. If it proves feasible to construct this additional space, the shell would be built out to provide additional vivarium and laboratory space as gift funding becomes available. We expect to be able to make these building additions to the CIRM Institute for Stem Cell Research because the University is currently pursuing some promising prospects for stem cell support, and because stem cell research and regenerative medicine are a major part of the University's strategic 10-year capital campaign plan. UCI is deeply committed to raising significant funding to support the continued growth of this program, and this commitment will not stop with the submission of this proposal.

D. The Space Layout

Stem Cell Center Co-Directors Professors Peter Donovan and Hans Keirstead, and the 6 new faculty lines will all be moving their laboratories entirely into the new building. Professors Douglas Wallace, Maike Sander and Thomas Lane will expand their stem cell programs into the space during the course of their projects. Clinical researchers Steven Cramer (Stroke), Henry Klassen and Leonid Lerner (Ophthalmology), Neil Hermanowicz (Parkinson's) and Ping Wang (Diabetes) will occupy the initial clinical and patient exam space. All of the current UCI CIRM SEED grant holders – Professors Grant MacGregor, Kyoko Yokomori, Frank LaFerla, Vincent Proccacio, Brian Cummings and Charles Limoli, are expected to utilize the flexible first floor visitor labs. Significant space is also allocated to laboratories and offices for regional, national and international visiting stem cell researchers. As the campus is currently engaged in a rapid growth and hiring phase, particularly in the biomedical sciences, it is anticipated that space vacated in existing campus buildings will be used for new faculty hires in closely related fields (such as developmental biology and systems biology) which are currently in recruitment.

The new building will provide laboratory and office space for 16 resident faculty, as well as 10 visitors, the Stem Cell Core facilities described above, training courses and outreach to the patient community and the public at large.

The current Stem Cell Research Center is located off-campus in the 101 Theory building. 101 Theory is 10,000SF of rented space, funded by the campus specifically in preparation for a new building. Over the past 2 years, the Campus has committed over $1.5 million in equipment to the Stem Cell Center, along with annual commitments of over $450,000 in rent and $500,000 in operating expenses specifically in anticipation of a future building.

When vacated, the 101 Theory labs are expected to continue to be leased by the University for biomedical research, and for those programs that are needing either temporary surge space, space to start a new program, or space for a group that is expecting to have a new building within 3-5 years. Since the space will not be available for 2 years, we cannot know which biomedical program will be in the greatest need for the space when it becomes vacant, but all of

the following stem cell related programs will be seeking to relocate to new space within this time span: Pharmaceutical Sciences, Institute for Brain Aging and Dementia, Irvine Eye Institute, and Biomedical Engineering.

Space Management:

The SCRC is managed by Co-Directors Peter J. Donovan, Ph.D and Hans S. Keirstead, Ph.D together with the Associate Director for Clinical Research Steven Cramer, M.D. The directors report to the university Office of Research and are advised by the Stem Cell Center executive committee which meets weekly. The committee consists of senior campus faculty and administration who advise the center on science, ethics, community outreach, publicity, fundraising, administration and research oversight. In addition, the directors are advised by a Patient Advocate Committee which meets quarterly, an ad hoc Faculty Oversight Committee and by an Advisory Board that meets quarterly. Decisions on space allocations will be made by the Co-Directors in consultation with these groups. In addition, they will consult with the Deans of the Schools of Medicine, Biological Sciences and Engineering since all faculty to be housed in the building will likely have homes in those Schools and space allocations will have repercussions throughout their Schools. All of the senior faculty named in Part 1 of the building application have had a long history of research in stem cell biology or regenerative medicine. Consequently, we believe they will likely have permanent space in the building. The six new faculty recruits to be hired will also likely have a permanent home in the building since all of them will be stem cell biologists. Access to the core facilities and visiting space will be managed similarly to the current policy for the CIRM-funded Shared Research Lab (SRL) where potential users meet with the SRL Director to review project space and time needs and resources are allocated accordingly and subject to quarterly review. Management of the building will be informed by internal and external advisory committees, similar in makeup to the current CIRM-SRL and Stem Cell Techniques Course internal oversight committee and external oversight committees. The external committee is comprised of faculty members from UCLA, UC Riverside, Chapman University and The Scripps Research Institute with expertise in stem cell biology and teaching. As with the SRL, facility use will only be permitted once researchers have fulfilled their regulatory requirements including IRB/IACUC/HSCRO approvals where appropriate. When space is limited decisions will be made commensurate with the overarching mission of the Institute and aligned with the strategic goals of CIRM, namely what research is most likely to facilitate the pipeline of research moving from the bench to the bedside. Space allocations will be reviewed annually by the Co-Directors in consultation with the SCRC executive committee and the Deans.

E. Project's goals associated with sustainability

UCI is committed to sustainable building and infrastructure design and has demonstrated leadership and innovation in this area for many years. Our long-standing commitment to energy efficiency dates back to the early 1990s when we set a goal to exceed California's energy code (Title 24) requirements by 20% to 30% on all new campus buildings. UCI has progressively incorporated best-practice energy design components into laboratory buildings and is in the forefront of energy-saving innovations. For example:

- We are currently working with CalOSHA as the test site for a new high-performance, energy-saving fume hood.
- UCI is developing a "smart lab" prototype using new sensor and information technologies to exploit the as-yet-unrealized potential of digital control systems that have

become commonplace in new laboratory designs. If successful, this prototype will sharply reduce laboratory energy consumption and carbon emissions and could have a far-reaching impact on ventilation and control paradigms for laboratories across the country.

- UCI just signed a 20-year contract with a private firm to install a photovoltaic solar system on 11 campus rooftops, which will generate 1.2 megawatts of power. This initiative is the largest of its kind in the University of California and in Orange County and is among the largest in the state.

In keeping with our commitment to the environment, the Building will be designed and constructed using sustainable design concepts, systems and materials to the maximum extent practical. The bid specifications for the Stem Cell project will require that the design-build teams submit design proposals that achieve LEED Silver certification standards at a minimum, while striving to achieve Gold standards. Bidders will be given a list of sustainability components with LEED points, some of which will be mandatory while others will be options from which bidders can choose. To achieve the Silver rating required in the base bid, the teams must submit designs with 33 to 38 LEED points. Bidders will also be asked to submit an alternate for achieving Gold certification, which requires 39 to 51 points. The campus can then determine whether this higher level is affordable within the budget. A list detailing the key sustainability goals for the Stem Cell project and a chart summarizing the required and alternative LEED points for the project are provided below.

Sustainability Goals:

- Enhance energy efficiency, out-performing California's Title 24 energy code by at least 20%.
- Enhance energy efficiency by commissioning building systems to ensure that performance requirements are met.
- Improve indoor air quality by using low-emission paints, sealants, and other materials.
- Reduce heat gain around the building by using high reflectance roofing and paving materials
- Conserve water by installing water-efficient plumbing fixtures, using reclaimed water for landscape irrigation, and using native plants and other drought-tolerant landscape materials.
- Utilize regionally sourced and manufactured construction materials and components.
- Use building materials that can be recycled or that contain a high-recycled content.
- Minimize waste products during construction, including recycling to divert a percentage of construction waste from landfill disposal.

Design-Build Performance Criteria for LEED Certification		
Rating Categories	Mandatory Points	Alternative Points (Min. 4 pts. Req'd.)
Sustainable Sites	8	5
Water Efficiency	3	2
Energy & Atmosphere	4	3
Materials & Resources	3	5
Indoor Environmental Quality	8	7
Innovation & Design Process	3	2
Project Totals	**29**	**24**
Silver Rating = 33-38 points		
Gold Rating = 39-51 points		

UCI also is looking into the possibility of implementing a second phase of the photovoltaic project, which would install solar panels on additional campus buildings. Currently, a legal restriction limiting funding for these projects makes further expansion financially infeasible. Our campus is currently working with UC's Office of the President and others to relax these restrictions and allow further development. If successful, we would begin planning the next photovoltaic project, which would include adding solar panels to the Stem Cell facility.

F. Group 2 Equipment

A large complement of equipment has been or is scheduled to be purchased in order to make the new building fully operational upon opening. Below is listed all equipment purchased since Aug 24, 2007 (Building RFA opening) or anticipated to be purchased prior to building opening. CIRM-funded purchases are indicated with a 0 entry in the Total Value column, in order to indicate their exception from the LEVERAGE calculation

Specific vendors and item numbers are listed where possible, but it is understood that model numbers and costs may vary due to changes in technology, needs and cost escalation over the two year period. Reasonable best estimates for all needed equipment are given based on similar recently purchased equipment.

Equipment purchased Aug 24, 2007 - July 1, 2008

Equipment Description	Qty	Unit Value	Total Value	Location
FACS analyzer	1	$290,000	$290,000	100
JEOL JEM-1400 Electron Microscope	1	$360,000	$360,000	200
Sanyo C02 INCUBATOR	1	$11,359	0	100
ESCO 6ft Biosafety cabinet	4	$10,000	0	100
Sanyo C02 INCUBATOR	4	$12,000	0	100

Equipment Description	Qty	Unit Value	Total value	Location
Inverted microscope w/video &camera	1	$71,000	0	100
Embedding station	1	$10,000	0	100
Microtome	1	$15,000	0	100
Cryostat	1	$31,000	0	100
Video conferencing	1	$38,000	0	100
Amaxa nucleofector	1	$12,000	0	100
Autoclave (small)	1	$11,000	0	100
Data storage server	1	$10,000	0	307
Spectrophotometer	1	$15,000	0	100
Nucleocounter	1	$15,000	0	100
Gel doc system	1	$21,000	0	100
Zeiss axiovert microscope	1	$121,000	0	100
Zeiss stereomicroscope with fluorescence	1	$23,000	0	100
UPS systems	3	$7,000	0	100
FACS sorter	1	$480,000	0	100
Total			$650,000	

CIRM funded purchases indicated with a 0 in Total Value, as they are excluded from LEVERAGE

Equipment to be purchased Jul 1, 2008 - building opening

Equipment Description	Qty	Unit Value	Total Value	Location
Clinical - Patient exam				
ISOLEX system	1	$20,000	$20,000	103
Baxter Colleague triple channel infusion pumps	1	$5,000	$5,000	103
SIMplex Multiplexing system	1	$65,000	$65,000	103
LIMS (Lab Information Management System)	1	$30,000	$30,000	103
Carpenter Qualux Chairs	3	$5,500	$16,500	103
ARJO patient lift w/scale	1	$5,000	$5,000	103
Elite QDR4500 Acclaim series DexaScanner	1	$26,000	$26,000	103
Acuson Sequoia 512 Ultrasound	1	$36,000	$36,000	103
Exam tables	2	$5,500	$11,000	103, 206
Digital EEG system	1	$25,790	$25,790	103
cardiac and vital sign monitoring system	1	$15,650	$15,650	103
Ophthalmology suite				
Topcon 3D OCT-1000 Optical Coherence Tomographer	1	$65,000	$65,000	207
Topcon 50DX w/ Auto Fluorescence	1	$29,995	$29,995	207
ICG with IMAGEnet 11 MP System (11megapixel digital system)	1	$36,995	$36,995	207
Reliance fx-920 Power Tilt Chair	3	$5,000	$15,000	207
Reliance 7800IC Instrument Stand	3	$5,000	$15,000	207
Haag Streit BM900 Slit Lamp	3	$8,195	$24,585	207
Cataract instrument tray	1	$5,500	$5,500	207
Reichert Phoroptor	3	$5,000	$15,000	207
Cornea-ctaract instrument tray	1	$7,500	$7,500	207
Eye stretcher	1	$5,500	$5,500	207
Diabetes clinical suite				
Chemistry and Glucose Analyzer	1	$17,000	$17,000	103

Equipment Description	Qty	Unit Value	Total Value	Location
Forearm perfusion equipment	1	$5,000	$5,000	103
Spacelabs patient monitoring system mCARE300	1	$6,000	$6,000	103
Defibrillator	1	$6,000	$6,000	103
Gait Lab				
Motion/Gait MA-300-16-003 analysis system, Motion Lab Systems, Inc	1	$37,500	$37,500	103
Cosmed K4B2 mobile Metabolic System (Energy/Oxygen consumption)	1	$53,312	$53,312	103
EMG – Nicolet Spirit	1	$15,000	$15,000	103
Lokomat Body weight support treadmill (Hocomo Inc.)	1	$295,000	$295,000	103
NeuroCom Balance manager	1	$89,950	$89,950	103
Static force plate	1	$8,000	$8,000	103
inVision package	1	$12,500	$12,500	103
TMS Lab				
Magstim Rapid, Single Pulse, and BiStim, Magstim Co. Ltd.	1	$70,000	$70,000	103
(4 capacitors, with respective coils, magnetic brain stimulation systems, software and computer)				
Frameless, stereotactic Brainsight neuronavigational system, Rogue Research (allows co-registration of TMS to their own MRI)	1	$57,955	$57,955	103
Research lab equipment				
ESCO biosafety cabinets	2	$10,000	$20,000	201, 202
Sanyo auto CO2 incubators	3	$12,000	$36,000	301, 304, 305
Sanyo pharmaceutical refrigerators	3	$8,000	$24,000	101, 102
Sanyo upright biofreezers	4	$10,000	$40,000	101, 102
MILLI-Q water purification systems	9	$10,000	$90,000	100, 200, 300
In hood microscope	3	$5,000	$15,000	100, 102
In hood microscope with fluorescence	4	$15,000	$60,000	100, 201, 202, 301, 304, 305
Nucleofector	2	$12,000	$24,000	200, 300
Spectrophotometer	2	$15,000	$30,000	200, 300
Nucleocounter	1	$15,000	$15,000	102
Refrigerated centrifuge	3	$15,000	$45,000	100, 101, 102
Upright microscope with fluorescence	1	$150,000	$150,000	200, 300
Magnetic bead sorter	3	$30,000	$90,000	100, 200, 300
ABI Real time PCR machine	3	$20,000	$60,000	100, 200, 300
Gel doc system	5	$30,000	$150,000	102, 200, 300
Balance, fine	2	$5,000	$10,000	100, 102
Dishwashers	6	$6,350	$38,100	100, 200, 300
Ice machines	3	$5,000	$15,000	100, 200, 300

Equipment Description	Qty	Unit Value	Total Value	Location
CO2 regulator systems	11	$5,000	$55,000	100, 200, 300
Bacteria shakers	3	$5,000	$15,000	100, 200, 300
Typhoon variable mode imaging system	1	$140,000	$140,000	100
Film processor	1	$12,068	$12,068	100
Autoclave	1	$86,600	$86,600	100
Scintillation counter	1	$35,000	$35,000	100
Centrifuge high speed	1	$40,000	$40,000	100
GE InCell Analyzer	1	$260,000	$260,000	100
Eppendorf microcentrifuges	7	$8,000	$56,000	100, 101, 102
Chemiluminescent analyzer	1	$12,000	$12,000	100
ELISA plate reader	1	$8,000	$8,000	100
Automated DNA sequencer	1	$27,000	$27,000	100
Luminometer	1	$12,000	$12,000	100
Cell irradiator	1	$120,000	$120,000	100
Electroporator	1	$40,000	$40,000	100
Olympus confocal microscope	1	$240,000	$240,000	300
LSR2 flow cytometer	1	$300,000	$300,000	300
Inverted fluorescence microscope with camera	2	$80,000	$160,000	200, 300
Beckman tabletop ultracentrifuge	2	$15,000	$30,000	200, 300
2nd floor Preclinical Lab				
Leica cryostat	1	$22,000	$22,000	201
Olympus confocal microscope	1	$240,000	$240,000	200
Olympus light microscope	1	$55,000	$55,000	201
Visual discrimination apparatus	1	$17,000	$17,000	201
Controlled rate freezer	1	$35,000	$35,000	201
Osmometer	1	$15,000	$15,000	201
Inverted microscope with imaging system	1	$70,000	$70,000	201
Embryology lab	1	$240,000	$240,000	200
Electrophysiology rig	1	$40,000	$40,000	201
-80C freezer	2	$10,000	$20,000	201
-20C freezer	1	$8,000	$8,000	201
Pharmaceutical refrigerator	1	$8,000	$8,000	201
Sanyo CO2 incubators	2	$12,000	$24,000	201
Total			**$4,504,000**	
Total Leverage eligible Aug 24, 2007 - Jul 1, 2008			**$650,000**	
TOTAL EQUIPMENT LEVERAGE			**$5,154,000**	

A large complement of existing and funded equipment will also be moved into the new building, once open, and significantly reducing the need for major equipment purchase under this application.

These items, from SCRC private funds, CIRM Shared Research Lab and Comprehensive grants and other sources, include:

Equipment purchased prior to Aug 24, 2007

Equipment Description	Qty	Unit Value	Total value	Location
Confocal microscope Zeiss LSM 510	1	$480,695	$480,695	100
Chameleon Ultra Ti-sapphire laser	1	$177,927	$177,927	100
Axiovert 40 CFL microscope	1	$13,276	$13,276	102
Monochrome digital imaging system	1	$5,835	$5,835	102
Axiovert 40 CFL microscope	1	$16,365	$16,365	100
Axiovert 40 CFL microscope	3	$15,614	$46,842	100, 101, 102
Axiovert 40 CFL microscope	1	$11,222	$11,222	100
Sanyo Auto CO2 incubator	7	$9,383	$65,681	100, 101, 102
ESCO LA2-6A2 Biosafety cabinet with base	4	$8,721	$34,884	100, 101, 301
ESCO LA2-4A2 Biosafety cabinet with base	4	$5,495	$21,980	100, 101, 304, 305
Sanyo Pharmaceutical refrigerator	1	$6,062	$6,062	101
GE uninteruptable power supply system	1	$6,142	$6,142	100
Beckman-Coulter centrifuge	1	$17,857	$17,857	100
Baker Biosafety Cabinet	1	$17,857	$17,857	102
Sheldon 1927 C02 incubator	5	$17,857	$89,285	102
Eppendorf mastercycler	1	$8,388	$8,388	101
Xyclone laser-objective system	1	$28,397	$28,397	100
MILLI-Q water purification system	1	$6,053	$6,053	100
ELIX 5 UV water purification system	1	$5,279	$5,279	100
Dri oocyte imaging system	1	$17,588	$17,588	100
IVF workstation 6ft	1	$32,943	$32,943	100
INOVA micro CO2 incubator	1	$5,010	$5,010	100
Sanyo scientific upright biofreezer	2	$8,100	$16,200	100
Minc benchtop incubator	1	$12,660	$12,660	100
Zeiss Axio observer	1	$16,795	$16,795	100
Eppendorf microinjection system	2	$14,998	$29,996	100
Sanyo Pharmaceutical refrigerator	1	$5,881	$5,881	102
Preclinical Lab				
6ft Biosafety cabinets	2	$6,000	$12,000	201
Dako autostainer	1	$52,000	$52,000	201
Dissection microscope	2	$40,000	$80,000	201
PCR Machine	1	$35,000	$35,000	201
Class A Clean Bench	1	$5,000	$5,000	201
Ultramicrotome	1	$47,000	$47,000	201
Resin Shaver	1	$6,000	$6,000	201
Leica cryostats	2	$18,000	$36,000	201
Stereotaxic instruments	2	$9,000	$18,000	201
Ultrasound for small animals	1	$20,000	$20,000	201
Guava Flow cytometer	1	$50,000	$50,000	201

Equipment Description	Qty	Unit Value	Total value	Location
Cooled centrifuge	1	$7,000	$7,000	201
Centrifuge	1	$5,000	$5,000	201
Clinical grade spectrophotometer	1	$12,000	$12,000	201
Water purification System	1	$6,000	$6,000	201
Olympus microscopes	2	$75,000	$150,000	201
Confocal microscope	1	$50,000	$50,000	201
-80°C freezers	2	$8,000	$16,000	201

Equipment Description	Qty	Unit Value	Total value	Location
-20°C freezers	2	$8,000	$16,000	201
4°C biomedical grade refrigerators	2	$5,000	$10,000	201
37°C incubators	2	$10,000	$20,000	201
Microscope with high resolution camera	1	$14,000	$14,000	201
4 ft Biosafety cabinet	1	$10,000	$10,000	201
Basic Science Lab				
GE In Cell 1000	1	$250,000	$250,000	300
Nucleofector 96-well	1	$30,000	$30,000	301
Eppendorf microinjection system	1	$30,000	$30,000	302
Nikon stereomicroscopes	2	$10,000	$20,000	301, 302
ESCO biosafety cabinets	3	$5,500	$16,500	301, 302
Sanyo CO2 incubator	2	$9,400	$18,800	301, 302
Nikon inverted microscopes	2	$7,500	$15,000	301, 302
Laminar flow hood	1	$10,000	$10,000	302
Eppendorf PCR machine	1	$7,000	$7,000	301, 302
Nucleocounter	3	$15,000	$45,000	301, 302
Revco -80 C freezers	3	$9,000	$27,000	301, 302
Total			**$2,343,400**	

The total value of all equipment to be purchased with non-CIRM funds (LEVERAGE) for the new facility under the present application is $5.154 million.

G. Project Elements that are Innovative in Design or Function.

The UCI campus prides itself on taking an innovative approach to every construction project, and has a long history of systematizing innovation and cost efficiency so that they become standard practice for the entire building program. For instance, campus design standards have mandated that building systems in new construction exceed Title 24 requirements by 20 percent since 1992—long before LEED certification became a factor in building design. The proposed building will benefit from a number of innovative practices that the campus has developed in the construction of other recent buildings. These features include:

- **Use of design-build delivery**. UCI has been a pioneer in applying the design-build system to complex research projects. In the design-build process, owners contract with a single entity—a contractor/architect-engineer team—for both the design and construction of a project, in contrast to the traditional design-bid-build method in which an architect-engineer prepares construction documents and the project is subsequently bid to a contractor for construction. This process is described more fully in the implementation plan in Section 7.
- The campus has realized a number of advantages in using design-build. By involving the contractor and sub-contractors in the design process, the University is able to capture the construction community's technical expertise and innovative ideas, resulting in an improved, more cost-effective solution. The design-build approach also ensures a single point of responsibility for completion of design and construction, eliminating the fragmentation of responsibility inherent in the traditional process, which often leads to large cost claims during construction. Project schedules can be significantly accelerated

because procurement, fabrication and construction of utilities and site development can begin while construction documents are still being completed. Overall, this delivery approach has enhanced the campus's ability to manage projects within budget by improving speed and efficiency, and reducing claims.

- **Use of the Hewitt Hall design:** Using this existing building as a starting point for the proposed building results in a design-build bid package that incorporates essentially a full schematic design package, including exterior elevations resulting in the ability to accelerate the schedule. In addition, overhead costs are reduced due to the abridged design requirements.
- **Open laboratories**: This feature increases the cost-effectiveness, flexibility, and efficiency of the building by reducing the total interior construction, reducing the complexity and amount of ductwork required, and reducing renovation requirements when space assignments change. The simplified ductwork allows for higher ceilings and consequently more glazing and an increase in natural light to the labs. This innovation also increases the programmatic functionality of the laboratories, as it can accommodate a variety of research activities and efficiently adapt as research programs and technologies change over time. In addition, open laboratories promote increased interaction among the scientists using the laboratories and results in more opportunities for mentorship relationships to develop between experienced senior scientists and new junior faculty.
- **Centralized laboratory support**: Fume hood alcoves and laboratory support areas are located in a centralized core, which concentrates mechanical and electrical services and eliminates duplication while facilitating sharing of support spaces.
- **Use of a structural system that doubles as the exterior cladding of the building**: The cast-in-place concrete structural system serves as an extremely durable cladding that requires no major maintenance for 75 years; operates as part of the building's thermal system, helping to keep the facility cool in the summer and warm in the winter; and contributes toward sustainability goals through the use of local material for the concrete and partly recycled content for the rebar.
- **Separation of the building's office and laboratory components**: This innovation reduces costs because the offices and other non-laboratory spaces can be built to less stringent standards than the laboratory component**.** The office component will have a lighter structure without the vibration requirements of the laboratory wing as well as a separate HVAC system providing recirculated air, as opposed to the laboratory component's variable-air-volume HVAC system with 100 percent outside air. The separation also allows for the possibility of operable windows and consequently natural ventilation in the office wing without affecting the laboratory system.
- **Mechanical system and telecommunications innovations:** The facility design will incorporate a number of strategies to increase the efficiency and efficacy of building systems, including use of digital air valves and occupancy sensors for environmental controls; high-velocity plume fans for laboratory exhaust to eliminate the possibility of re-entrainment of exhaust into the building's supply-air system; the option for the use of fan wall technology for the air handlers, resulting in a smaller air handler and eliminating reliance on a single fan to provide air to the facility; use of Voice over IP (VoIP) technology, which allows voice transmission over the internet and eliminates the need for separate cabling for telephones and computers; wireless network connections throughout the facility; wireless assisted listening systems in the large conference rooms to aid the hearing impaired; and video-conferencing capability in one meeting area.

- **Shared site amenities and utilities.** The campus has implemented a number of measures to increase the efficiency and reduce site and utility costs for the proposed project, including sharing the existing loading dock at the neighboring Gillespie Research Facility, sharing the existing electrical transformer and emergency generator provided for the Gillespie Facility, and purchasing the pavers required for completion of the pedestrian mall between the Stem Cell Building and Hewitt Hall as part of a previous project in order to maintain continuity of quantity and color.
- **Functional innovations:** The integration of research and clinical space is a key feature of the innovative design and capability of the proposed building, and the arrangement of the laboratory, office, and support spaces within the building is intended to promote productive dialog among the scientists, clinicians, graduate students, and administrative staff. The location of the clinical activities on the first floor ensures easy access to patients and underscores the clinical emphasis of our program to all who enter. Research and clinical labs and offices are juxtaposed, encouraging dialogue and collaboration. In-building Regulatory Quality Assurance offices will provide continuity from basic to applied research, speeding delivery of clinical products and reducing costs. The inclusion of a Core Facility within the building will provide cell culture expertise, services and equipment to all researchers within the building. This innovative building capability will decrease duplication of basic cell culture needs amongst labs within the building, and increase standardization of basic culture conditions. The Core Facility will also house our FDA-compliant Embryology Lab, facilitating the generation of patient-specific stem cell line generation for research and eventually clinical application.

Section 4. Shared Facilities

The UCI campus has a full complement of centrally supported state-of-the-art facilities and resources that serve biomedical research providing services at no or reduced cost to investigators throughout the UCI campus including the Stem Cell Research Program. These facilities leverage campus investment to maximize the impact of CIRM research funds and eliminate the need for establishment of independent facilities within the Stem Cell Building, thereby delivering significant cost savings to CIRM. If these cores had to be reproduced in the proposed facility they would take up significant space and would entail enormous startup costs. The dollar replacement value of the equipment in these cores is difficult to calculate but we have included below some examples for reference purposes.

Previous CIRM awards, such as the Shared Research Labs, have enabled establishment of services that provide added value to the currently requested CIRM investment. Additionally, CIRM-funded research core services proposed within the new building will be made available on a recharge basis to stem cell researchers funded by other sources providing further cost savings to CIRM. Income from other sources helps defray costs of service contracts purchased on large pieces of equipment and helps support salaries of staff that run those facilities. Further, recharge is calculated to generate funds in the long-term to cover the replacement cost of major equipment. As long as core usage by non CIRM-funded projects does not inhibit core use for CIRM-funded projects, income from other projects helps support the long-term success of cores. Core Facility Management together with the Stem Cell Research Center Executive Committee will ensure that CIRM-funded projects have absolute priority in the use of the core facilities located in the Stem Cell Building to guarantee no interruption to their progress.

Core facility management will be carried out as described in our CIRM-funded Shared Research Laboratory grant. Briefly, the activities of the Stem Cell Research Center are managed by the Co-Directors, Drs. Peter Donovan and Hans Keirstead, in conjunction with the Center Executive Committee, that meets weekly. An established Internal Oversight Committee (comprised of the Director of the Stem Cell Techniques course and users) and External Oversight Committee (comprised of stem cell experts and educators from UCLA, UC Riverside, Chapman University and Scripps) advise the Co-Directors concerning core operations.

Related interacting cores that add value to CIRM's investment: A broad array of interdisciplinary and collaborative programs on the UCI campus contributes significantly to the Stem Cell Program. Each has an established home near the proposed Stem Cell Building. The new building will allow these programs to increase their participation in the Stem Cell Program by providing their services and research support.

The Reeve-Irvine Research Center (RIRC), has collaborated with 21 faculty from the Schools of Biological Sciences, Medicine, and Engineering in <8 years. RIRC conducts rodent model spinal cord injury research through the Roman Reed Core Laboratory and the Spinal Cord Injury Research Techniques course, a hands-on 3-week workshop that provides direct practical experience to students, postdoctoral fellows, and faculty. Currently the RIRC houses four investigators carrying out stem cell research **funded by CIRM**.

Stem Cell Center Vivarium funded by a **CIRM Shared Research Laboratory** award will have 5 rodent holding rooms, a surgical suite, a behavioral suite, minor procedure room, a necropsy room, and a live animal whole body imaging system in a facility is near the proposed Building.

The Clinical Spine Initiative is creating a comprehensive spinal cord injury care and research center that will encompass trauma, spinal tumors, transverse myelitis, and multiple sclerosis, from acute to the chronic disease phase. Phase I includes dedicated inpatient beds for acute spine patients and coordinated services between the current outpatient clinics at UCI Medical Center. Phase II is a unified site for comprehensive, multidisciplinary, coordinated inpatient and

outpatient clinical care for spine patients and infrastructure for clinical research involving spinal cord injury/disease at UCI. UCI's initial stem cell treatments will likely include a Spinal Cord Injury target, the Clinical Spine Initiative will provide needed infrastructure to carry out necessary stem cell clinical research. The Clinical Spine Initiative is a logical clinical extension of UCI's 11-year old Reeve-Irvine Spinal Cord Injury Research Center.

The Transgenic Mouse Facility (TMF) offers a full complement of services for production, care, maintenance, and all aspects of study of transgenic mice used in basic and translational stem cell studies. The TMF is located near the planned Stem Cell Building.

The John Tu and Thomas Yuen Center for Functional Onco-Imaging includes several high-field human and small animal MRI systems, and whole-body human PET imaging. Center Director Dr. Orhan Nalcioglu's laboratory tracks labeled hES cell-derived neuronal progenitor cells in an animal model of spinal cord injury. This work is funded in part by the UCI **CIRM Training grant**. The Center contains over $9 million in equipment, and occupies 4625 SF in a building adjacent to the proposed stem cell facility.

The Institute for Clinical Translational Science, UCI's clearinghouse for human participant based research, houses IRB protocols for over 100 investigators and provides extensive core laboratory and clinical visit facilities including blood and exhaled gas analysis, bionutrition, and human performance labs. The Stem Cell program was built to augment and enhance ICTS resources providing stem cell-specific facilities. Facilities within the Preclinical Development and Clinical Research Program have been modeled after and will use resources available within the ICTS. Most of the clinical researchers in the Preclinical Development and Clinical Research Program will utilize the core facilities offered through the ICTS

Center for Diabetes Research & Treatment. Established in 2005, the Center for Diabetes Research and Treatment is well positioned to launch innovative programs to reduce human suffering from diabetes. The Center includes research and clinical programs partnered with Boston's acclaimed Joslin Diabetes Center. This clinical program has grown rapidly and gained strong support from the LA and Orange County diabetes community, becoming a leading referring center of choice. This is very important for the CIRM Clinical Research Program because of the impact on patient recruitment into clinical trials. Currently, 6 investigator-initiated diabetes trials rely on the diabetes center to recruit patients. The Center has a high-quality infrastructure for researchers to develop innovative approaches for the prevention and treatment of diabetes and its complications. Sixteen basic and clinical research faculty members are leading pertinent programs focused on topics such as islet cell development, mitochondrial medicine, autoimmunity, pharmacology, human physiology, biomedical engineering, lipid metabolism, obesity, and health policy.

Chao Family Comprehensive Cancer Center. One of only four NCI Comprehensive Cancer Centers in California, the Cancer Center supports pilot and feasibility studies and many core laboratories ranging from genomics to tumor imaging. Strong interest in cancer stem cells has created synergy between the Cancer Center and the Stem Cell Research Center. A joint Stem Cell Retreat was organized in 2007 and led to the formation of collaborative groups that are now organizing new stem cell-related projects. Importantly, the Cancer Center has a well-developed clinical trials division that will inform preclinical work in the stem cell center.

UCI Stroke Center. UCI Medical Center's Stroke Center was the first Stroke Center in Southern California to be certified by the Joint Commission on Accreditation of Healthcare Organizations for stroke care and one of the first groups to be so certified in the U.S. The Stroke Center maintains acute stroke protocols, a brain attack team (e.g. with door to CT interpretation time of 30 minutes), multidisciplinary conferences each week, and regular quality assurance reporting.

Institute for Brain Aging and Dementia (IBAD). Designated as an Organized Research Unit by the UC Regents in 1995, IBAD supports a broad range of basic and clinical research in Alzheimer's Disease and age-related dementia. The Institute is an NIA P50 Alzheimer's Disease Research Center (ADRC) and is one of 10 State-designated Alzheimer's Disease Research Centers of California (ARCC).

Center for Molecular and Mitochondrial Medicine and Genetics (MAMMAG) The mission of MAMMAG, directed by Dr. Douglas Wallace, is to bring together scientists, clinical investigators, and patients to determine the causes of and to generate cures for age-related metabolic and degenerative diseases that are thought to be the result of somatic mitochondrial DNA mutations. The clinical program is complemented by MAMMAG's CLIA-certified laboratory that provides diagnostic information to patients for a range of genetic disorders and is one of the few CLIA-certified labs in the state. MAMMAG occupies the entire 2nd floor of Hewitt Hall, across from the proposed stem cell building, and contains more than $20 million in equipment.

The UCI Center for Research Imaging provides support for imaging research on the UCI campus with several high resolution PET and MRI scanners available to investigators on a recharge basis as well as expert technical support and training. It contains over $7 million of equipment and occupies 2,620 SF in a facility adjacent to the proposed stem cell building.

The Brain Imaging Center (BIC) is a world-class facility performing cutting-edge research using a state-of-the-art Positron Emission Tomography (PET) scanner. BIC offers the highest resolution PET images available (about 2mm resolution). UCI's scanner is one of only thirteen of this resolution in the world and five in the U.S. BIC is a leader in such federal initiatives as the Biomedical Informatics Research Network, the Transdisciplinary Imaging Genetics Center, and the National Alliance for Medical Image Computing and sponsors the annual International Imaging Genetics Symposium.

The Optical Biology Core provides staffed optical biology resources and training focused on addressing problems in developmental biology and regeneration. Occupying 800 SF of space in McGaugh Hall, it contains over $1 million in microscopy and related equipment including specialty items designed and constructed by resident staff.

The *Beckman Laser Institute and Clinic* (BLI) is a multi-disciplinary center for research, teaching, clinical medicine, and technology transfer. Its mission is to serve as the world's leading interdisciplinary center for Biomedical Optics. BLI develops new enabling biophotonic technologies (such as the UC system's #2 revenue generating patent in 2005, a LASIK surgery cooling device), applies biophotonic technologies to key problems in biology and medicine, trains students, fellows, and physicians in Biomedical Optics research, and provides patients access to advanced therapeutic and diagnostic clinical procedures using biophotonic medical devices (such as Optical Coherence Tomography for assessing breast cancer treatment effectiveness). BLI and LAMMP, the Laser Microbeam and Medical Program, occupy a 38,000 SF facility near the proposed building with over $20M of equipment.

The Laboratory for Fluorescence Dynamics (LFD) is a national research resource center for biomedical fluorescence spectroscopy supported by the National Center for Research Resources. LFD provides a state-of-the-art laboratory for fluorescence measurements with technical assistance to visiting scientists. The LFD maintains state-of-the-art facilities for microscopy, spectroscopy, computing and visualization, and provides training at no cost to participants. It occupies an ~8000 SF facility in the interdisciplinary Natural Sciences II buildingand contains over $10M in equipment.

PharmSci HTS The *High Throughput Screening Facility* is a recharge unit that synthesizes small molecule libraries in groups of hundreds or thousands and works with individual

researchers to develop automated assays to screen them for a specific activity of interest. The Chemistry Department maintains one of the world's largest fully annotated small molecule databases with full reaction modeling and other capabilities. The $1.5 million HTS facility occupies 1500 SF near the proposed stem cell building.

Gillespie Vivarium The Gillespie vivarium is a full service animal housing and husbandry vivarium with state-of-the-art equipment, animal facilities, dedicated laboratory space, and trained technical personnel. The vivarium has an animal holding room with isolation cubicles for quarantine of incoming animals, immunocompromised animals or those with disease.

Mass Spectrometry Facility in Medical Sciences D A shared campus resource, the Medical Sciences Mass Spectrometry Facility, is dedicated to the rapid solution of analytical problems in support of research at UCI. It is equipped with several state-of-the-art Mass Spec machines tailored for protein, peptide, and large biological molecule characterization and is fully staffed.

All these facilities are located in close proximity to the proposed Building (see map on page 12) and resources will be available to stem cell researchers at great cost savings, compared to constructing new facilities or outsourcing needed services. The existence of these campus resources has allowed us to reduce the equipment budget for the current project and will provide services and significant cost savings to all CIRM-funded investigators in the future. (For example, renovation of an existing vivarium has obviated the need for a vivarium request in the current building.)

Estimated cost savings from not having to build or equip the existing campus resources runs in excess of $100 million dollars, as indicated by the estimates above.

The existence of these cores, along with those proposed in the new stem cell building, will allow for us to be a regional super-magnet of stem cell research – a nexus of research activity from the basic to clinical application across the southern California region. CIRM will experience efficiency and value-added effectiveness for this and all future investments through this conglomeration of top-flight talent and resources.

UCI's track record in operating such core services: UCI's long history of productivity and active interdisciplinary collaboration stems, in large part, from the continued support and service provided by an array of professionally staffed cores outfitted with up-to-date, well-maintained equipment. Campus Cores, Organized Research Units, and Centers, as above, flourish at UCI, provide services and training, and enhance productivity across the campus, as detailed in Part 1 of the building application.

UCI services for technology transfer and intellectual property: The University of California, Irvine recognized early the importance of an IP and Tech Transfer framework specific to stem cell technologies that took into account their unique scientific, legal, and ethical demands. Significant regulatory support is invested in informing even the basic research component of stem cell science at the University with several dedicated full-time employees responsible purely for ensuring stem cell regulatory compliance including FDA quality assurance officers and IACUC/hSCRO experts, so that all investigations are constructed for FDA compliance if brought to clinical trials. The UCI Office of Technology Alliances (OTA) provides faculty and researchers with guidance and support in matters of intellectual property and commercialization of inventions. OTA operates to protect, manage, and license the University's intellectual property (patents, copyrights, trademarks, and tangible research products) and to enhance access to stem cell research and technology resources. UCI's stem cell researchers, through OTA, are committed to ensuring the rapid development and commercial application of discoveries emanating from stem cell research programs for the broad public benefit. Furthermore, OTA retains an Alliance Development Officer who serves as a liaison to develop and maintain

University/industry collaborations for the various stem cell research programs on campus. The Officer is a Ph.D.-level scientist with extensive biotechnology industry experience, whose role is to facilitate long-term industry collaborations with the aim of developing promising early-stage research, ultimately leading to commercializable stem cell-based products.

Core Shared Facilities to be Housed in the UCI Stem Cell Research Building: To enable the activities of the basic and discovery research program we propose to establish state-of-the-art core services to act as a "super-magnet" to attract researchers to the Stem Cell Research Center. Existing equipment currently housed in the Stem Cell Research Center will be moved to the new facility and supplemented with new technologies developed at UCI (and elsewhere) and make those technologies available to all who wish to use them, both on an off campus. Non CIRM-supported studies will be charged nominal recharge usage fees in order to offset the costs of staffing and maintenance of these cores, providing added value to CIRM.

Stem Cell Research Core Facilities. The existing cores to be housed in the new Stem Cell Building include cell culture, incubation, and imaging cores, with equipment as detailed in Section 3F. This equipment will be moved from its current location in leased space off campus, making it more generally available to the wider UCI stem cell research community. In addition we have planned space for companies to showcase their new technologies and make them available to researchers throughout the state.

Videoconferencing Facility. A Tandberg Videoconferencing System streamlines collaborative interactions with partnering institutions as well as augments training capacity.

Clinical Facilities. The Clinical researchers described in the proposal have significant space outside the Stem Cell Building and will utilize the building primarily for their stem cell-related clinical investigations. The building itself will have all of the resources to needed to see patients and perform clinical studies, including 5 clinician offices, 5 patient examination and assessment suites, a patient treatment planning room, a neuromotor/gait lab, core patient sample handling facilities, wet and dry storage areas and nursing staff support. Initial clinical space will be devoted to the neuromotor and retinal programs with small segments devoted to diabetes and mitochondrial disease.

Human Performance Core Facilities. UCI has unique resources in human performance measurement including neuroimaging capabilities, neurophysiology, cardiorespiratory testing, metabolic testing, analyses of skeletal muscle biology, and robotic exercise physiology that will serve as the foundation of new core facilities within the new building. New facilities include an expansion of the ICTS transcranial magnetic stimulation laboratory that provides measures of relevant to many neuromotor and neurodegenerative disorders, a gait assessment lab to evaluate patient function across diagnoses, and ophthalmologic applications such as slit lamp examinations. These resources will be available to investigators in UCI's Stem Cell Program, collaborators, and visiting scientists, as well as clinical researchers throughout the state. In light of current usage levels of the existing human performance laboratories in the UCI ICTS, significant and immediate use of these resources is anticipated. This core will greatly facilitate multiple key clinical trial methodological issues that need to be addressed in parallel with the development of cell-based treatments including identification of optimal participants in trials and valid, reliable, FDA-compliant outcome measures, all critical to clinical trial success.

Regulatory Core. An office dedicated to stem cell oversight and regulatory issues will be available for guidance on Institutional Review Board (IRB)/Institutional Animal Care and Use Committee (IACUC)/Human Stem Cell Research Oversight (HSCRO), technology transfer, and FDA regulatory issues. This Core will ensure FDA compliant development of preclinical projects streamlining the progression from bench to clinic.

Section 5. Budget and Cost Plan/ Cost Estimate (Also see Subpart C and attached cost estimate)

Cost Assumptions: Costs were based on a number of general conditions of construction, including a start date of September 2008, a construction period of 22 months, implementation using a modified design-build method, competitive bid of the general contract with three to four pre-qualified general contractors, competitive bid of major subcontract packages with qualified subcontractors, no small-business set-aside requirements, payment of prevailing wages by the contractor, no phasing requirements, and full access to the site by the general contractor during normal business hours. Further cost assumptions are based on the project consisting of a three-story wet laboratory building of 61,575 gross square feet. The budget plan includes the following assumptions:

- Foundations include excavation and removal, shallow spread footing foundations, elevator pits, and perforated drain pipes.
- The structure of the building is assumed to be a structural poured-in-place concrete shear-wall frame supporting upper floors and roofs of poured-in-place concrete. Allowances were also included for vibration isolation, mechanical equipment pads, and miscellaneous metal supporting framing.
- Exterior cladding ratio of 0.85 is based on the preliminary massing plan. The cost plan includes metal stud framing, exterior sheathing, batt insulation, painted gypsum board interior finish, aluminum framed insulated glass curtainwall, and fixed and operable windows, aluminum glazed entry doors and hollow metal exit doors. Allowances are also included for sunscreens and canopies and soffit finishes.
- Roofing and waterproofing includes waterproofing to elevator pits and retaining walls, single-ply PVC over rigid, tapered insulation, and allowances for walkway pads, flashings, and miscellaneous sheetmetal work, and caulking and sealants.
- Interior partitions include metal stud framing with batt insulation and painted gypsum board linings, interior glazing, and wood doors in hollow metal frames. Acoustic partitions are provided at the required locations. Interior finishes include carpet/sheet vinyl/vinyl composition tile/ceramic tile floors, ceramic tile and resilient rudder bases, ceramic wall tile at restrooms, and allowances for acoustic and wood panels, column furring and finish, and a combination of suspended acoustic tile and painted gypsum board ceilings.
- Function equipment includes general building items such as toilet partitions and accessories, code and room identification signage, window blinds and fire extinguishers. Also included are environmental rooms, laboratory shelving and laboratory millwork, fume hoods, glasswash/autoclave, built-in cabinets and countertops, ceiling-mounted projectors, and motorized projection screens.
- Vertical transportation includes one open exterior stair connecting three levels, one interior stair to facilitate interactions between researchers on different floors, two semi-enclosed fire-exit stairs with painted metal railings, one passenger elevator, and one freight elevator. It is assumed that one stairway will continue to the roof.
- Plumbing includes sanitary fixtures, lab and general gas piping, vacuum, compressor air, waste, vent and domestic service pipework, hose bibs and floor drains, water-heating equipment and roof drainage.

- HVAC includes campus-fed chilled and high-temperature hot water, thermal expansion compensation and circulation, hydronic pipework distribution, rooftop air-handling units and exhaust fans, 24-hour service fan coil units, VAV boxes, air distribution systems, building management controls, and unit ventilation.
- Electrical includes main, emergency, machine, equipment, and user convenience power, lighting, lighting controls, telephone/data (conduit only), MATV and audio/visual systems (conduit only), and fire alarm system.
- Fire Protection includes automatic wet sprinkler system.
- Site preparation includes removal of asphalt paving and general site clearing and rough grading.
- Site development includes allowances for hardscape (50%) and softscape (50%) of the finished site area. Also included is an allowance to rework the existing loading dock at the Gillespie building so that it remains accessible during construction.
- Site utilities include domestic and fire water, sewer, gas, chilled and high-temperature hot water, stormwater drainage, electrical mains power and telecommunications/signals (conduit only), and connections to existing infrastructure.
- Out-of-contract costs include telecommunication/data cabling and equipment, HVAC rebalance, flood insurance, and all-risk insurance.

Costs in comparison to recent experience: The building construction cost of the proposed Stem Cell Research Building is $682.76/OGSF. This cost is in the range of other UCI laboratory projects that are currently under construction or out to bid. We looked at three laboratory projects, escalating unit costs as necessary to reflect the same timeframe as the proposed Stem Cell Building. Some details about these projects and the adjusted costs for each are provided below:

- **Biological Sciences Unit 3**
  - Current status: under construction; completion scheduled for March 2008
  - Description: 154,000 OGSF wet laboratory building
  - Adjusted construction cost: $589/OGSF.
- **Engineering Unit 3**
  - Current status: under construction; completion in June 2009
  - Description: 122,000 OGSF laboratory building
  - Adjusted construction cost: $666/OGSF
- **UCI Medical Center Clinical Laboratory Replacement Building**
  - Current status: out to bid
  - Description: 48,000 OGSF wet laboratory building
  - Adjusted budgeted building construction cost: $699/OGSF.

Section 6. Funding Plan, Leverage & Cash Flow

A. Funding Plan (Also see Subpart D - leverage calculation)

We are proposing that the total project cost of $60,907,000 for the Stem Cell Research Building be funded from $37,000,000 in CIRM funds and $23,907,000 from other sources as follows: $11,681,000 in gifts backed by signed pledges, $11,072,000 in external financing to be repaid by campus funds, and $1,154,000 in grants from the University of California and a private foundation. The campus will ask the UC Regents to approve the debt for this project once the ICOC has approved funding.

B. Drawdown Schedule

The funding Drawdown Schedule is attached as an Appendix.

C. Facility Long Term Operations and Campus Commitment

The proposed project occupies a key place in UCI campus strategic planning. The campus commitment to the new building includes full long-term support of the Operations and Maintenance of Plant (OMP), as well as providing $320,000 annually in staff salary, benefits and administrative support. Indirect costs from current and future CIRM grants will be utilized to cover a portion of these OMP costs, as per the CIRM grant administration policy. In the long-term, as the building comes online, the SCRC will hire a building manager to oversee the structural maintenance and operations of the building.

The SCRC and related activities are highlighted in the campus academic plan, “Focus on Excellence: A Strategy for Academic Development 2005-2015.” Six new faculty have been allocated to the Center for recruitment in the coming years, all of whom will be located in the proposed building. The Center reports organizationally to the Office of the Vice Chancellor for Research, which has extensive experience in the development and oversight of interdisciplinary research organizations and related buildings and shared facilities. The Office of Research currently directs 25 major research centers and institutes in virtually every part of the campus, for example, the Institute for Clinical Translational Science and the Optical Biology Core, and the California Institute for Telecommunications and Information Technology (Calit2) which has its own five-story dedicated research building including laboratory space and major shared research facilities. The Office of Research is also responsible for campus research support functions including sponsored projects administration, human and animal subjects research oversight, laboratory animal care, and technology transfer. All of these services will be available directly to the Center which will enable rapid continued development of the Center’s activities and full utilization of its building with a minimum of administrative “hand-offs” and resulting functional delays. High-level staff members of the Office of Research, including the Associate Vice Chancellor for Administration and the Director of Research Development, have been assigned to contribute to the success of the current proposal and the Center for an indefinite period

Management of the facility and its core resources will be overseen by the SCRC Executive Committee, which meets weekly to discuss Center operations and usage allocation. This multidisciplinary, collaborative team includes investigators with distinct expertise in critical elements of our program including basic stem cell biology, large and small animal models, preclinical development for therapeutics, FDA liaison, rehabilitation, and clinical infrastructure to undertake clinical research and research oversight and ethics. The Executive Committee will provide overall guidance for the planning process and long-term building maintenance.

Section 7. Schedule/Implementation Plan

A. Proposed Project Schedule (subpart E)

Attached as Appendix.

B. Status of approvals and related schedule impacts

To address CIRM's emphasis on completing projects within 24 months after grant award, UCI has done a great deal of preliminary work on the Stem Cell Building and is positioned to move forward quickly when CIRM approves funding. The design-build process is being expedited by modeling the design of the Stem Cell Building on a recently completed biomedical research laboratory building—Hewitt Hall—incorporating modifications to reflect the specific needs of stem cell research. The preliminary design of the building has been completed, as has the required environmental impact documentation, both of which were approved by The Regents in July 2007. At that time, The Regents also authorized UCI to bid the Stem Cell project by issuing a Request for Proposal to pre-qualified design-build teams who would develop preliminary plans as part of their bid submissions. The campus intends to initiate this process in May 2008, contingent upon funding approval by the ICOC. The only remaining approval requirement is The Regents approval of the project budget and external financing, which the campus intends to request at the July 2008 Regents' meeting, again assuming that funding is approved at the May ICOC meeting. The campus would be ready to award the construction contract in early September 2008, followed by project completion in July 2010.

C. Implementation team and record

UCI has a proven track record for constructing wet laboratory buildings on time and on budget using the design-build delivery process, which will be the implementation method for the proposed Stem Cell Building. In the design-build process, owners contract with a single entity—a contractor/architect-engineer team—for both the design and construction of a project, in contrast to the traditional design-bid-build method in which an architect-engineer prepares construction documents and the project is subsequently bid to a contractor for construction.

In the design-build process, the campus prepares an extensive bid package that outlines the detailed requirements for the project including functional space requirements, design criteria for architecture, performance criteria for building systems, and site development and utility requirements. In this way, UCI retains an appropriate level of control over both the exterior and interior building design as well as building system performance. This comprehensive package is competitively bid to a list of pre-qualified contractor/architect teams. The resulting design proposals are evaluated on a best-value basis by a committee that includes campus architects and engineers, user representatives, and outside consultants. The committee rates each anonymous proposal by assigning quality points to a variety of criteria, including aesthetics, functionality, adherence to program and performance criteria, innovative alternates, the team's qualifications and experience, and others. The project is awarded to the team that provides the best value for the cost (i.e., lowest cost per quality point), assuming that the overall cost is within the allowable budget.

The campus has realized a number of advantages in using design-build. By involving the contractor and sub-contractors in the design process, UCI is able to capture the construction community's technical expertise and innovative ideas, resulting in an improved, more cost-effective solution. The design-build approach also ensures a single point of responsibility for completion of design and construction, eliminating the fragmentation of responsibility inherent in

the traditional process that often leads to large cost claims during construction. Project schedules can be significantly accelerated because procurement, fabrication and construction of utilities and site development can begin while construction documents are still being completed. Overall, this delivery approach has enhanced UCI's ability to manage projects within budget by improving speed and efficiency and reducing claims.

A major factor in UCI's success with design-build has been the development of a design and construction services office specifically organized and staffed to support design-build projects. Design and Construction Services (D&CS) is a group of over 100 professional architects, engineers, construction inspectors, quality assurance specialists, contract administrators, and many others, all of whom were specially chosen and trained to facilitate the design-build process. The department is organized into five units—Project Development, Quality Assurance, Contract Administration, Construction, and Budget and Finance—and is responsible for the implementation and management of a $1.3-billion Capital Improvement Program both on the UCI main campus and at the UCI Medical Center.

D&CS is led by the Campus Architect, Associate Vice Chancellor Rebekah Gladson, who is UCI's chief building official and will serve as the University's representative for implementation of the Stem Cell Building project. During her 20-year tenure at UCI, Ms. Gladson has spearheaded the broad implementation of the design-build process on campus and at the Medical Center. Under Ms. Gladson's leadership, UCI has received national and regional awards for design and building excellence including being named Owner of the Year by the American Subcontractors Association in 2006. As with other campus projects, Ms. Gladson will take an active role in the Stem Cell Building project. She has already been an active participant in the pre-qualification process for the three design-build teams who will submit proposals for the Stem Cell Building project. During the bid process, she will lead both public and private meetings with the design-build teams to answer questions as they develop their proposals and she will participate in the interviews that are part of the evaluation process after the teams have submitted their proposals. When construction starts, Ms. Gladson will meet with the senior management of the design-build team on a regular basis to ensure that the project scope, budget, schedule, and quality are being maintained.

Senior Architect Clifford Stokes, who will be the project manager for the Stem Cell Building, has over 20 years experience as an architect and project manager on the UCI main campus and medical center. Mr. Stokes has been responsible for the management of 7 design-build wet laboratory buildings during his tenure at UCI. All of these projects have been completed within the project budget, on or ahead of schedule, with no litigation. Due to this success, Mr.Stokes has taken on a mentoring role within the office with less experienced project managers.

The Project Designer will be determined when the design-build team has been selected.

UCI has successfully employed the design-build process on projects for well over a decade, completing a diverse array of facility types including 12 wet laboratory buildings, a computer science facility, three office/dry laboratory buildings, recreational facilities, student housing, and parking structures. In addition, the campus currently has 8 design-build projects under contract on the main campus, two of which are laboratory buildings. Moreover, UCI is nearing completion on the new $393 million New University Hospital, which is the first hospital project in the state to be implemented as a full design-build project and is ahead of schedule.

The table below illustrates UCI's success in delivering projects of a similar size and complexity to the Stem Cell Building on schedule.

University of California, Irvine
Historical Track Record for Completion of Research Buildings

	Project Name (Type of Space)	OGSF	Year of Completion	Scheduled Construction Period * (months)	Actual Construction Period ** (months)
1	Sprague Hall (wet labs)	93,727	2002	26	26
2	Natural Sciences Unit 1 (wet labs)	120,913	2002	26	26
3	Hewitt Hall (wet labs)	81,331	2003	25	23
4	Croul Hall (wet labs)	69,500	2003	24	23
5	CAL IT2 (wet and dry labs)	120,585	2004	28	28
6	Natural Sciences Unit 2 (wet labs)	138,970	2005	30	30
7	Bren Hall (computer labs)	149,103	2007	30	29
8	Biological Sciences Unit 3 (wet labs)	153,985	3/2008 (scheduled)	29	29

* Scheduled months per construction contract
** Completion based on building occupancy

Section 8. Provide Plans and Specifications

A. Building Floor Plans (Attached as Appendix)

B. Outline Specifications – Schematic Design (CD provided)

C. Table indicating Gross and Assignable Square Feet

University of California, Irvine
Stem Cell Research Building
ASF and OGSF by Space Category

Space Category	ASF	OGSF
Research Laboratory Space intended to be assigned to Individual Pis	13,662	21,622
Laboratory Support Space assigned to individual Pis	9,284	14,693
Shared Laboratory Space *	2,204	3,488
Shared Laboratory Support Space **	4,720	7,470
Core Laboratory Space	3,452	5,463
Offices for Pis	3,880	6,141
Other Offices	1,195	1,891
Admin and other support space	510	807
Total	38,907	61,575

* Shared Laboratory Space includes clinical research space.
** Includes shared wet lab support and dry research space (interactive research rooms, conference room)

D. Space Plan Requirements Submitted in Subpart E of Part 1 app.

The proposed Stem Cell Research Building totals 38,907 ASF. This represents a slight increase over the 38,694 ASF that was reported in Part 1 of the Major Facilities Grant Application. This increase, and any change in space among categories, is the result of program refinement because the Stem Cell Center and Design & Construction Services staff have continued work on the building. The table above provides space information by space type as required.

CAPITAL BUDGET
Major Facilities Grant Program

CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE

CIRM Application # RFA 07-03

Project Title:	Number:	
UC Irvine Stem Cell Research Building	Applicant Reference #	FA1-00612-1

Prepared by: Janet Mason
Phone #:(949) 824-7668
Email:jcmason@uci.edu

line	COSTS/FUNDING	CIRM	Matching	Other	Total	%
1	Construction	$37,000,000	$6,000,000	$2,895,000	$45,895,000	82.3%
2	Construction support	$0	$0	$1,729,000	$1,729,000	3.1%
3	Design, struct/seismic		$150,000	$385,000	$535,000	1.0%
4	Design, Other		$850,000	$756,000	$1,606,000	2.9%
5	Proj Mgmt & admin		$400,000	$3,206,000	$3,606,000	6.5%
6	SUBTOTAL	$37,000,000	$7,400,000	$8,971,000	$53,371,000	95.7%
7	Contingency %		$0	$2,382,000	$2,382,000	4.3%
8	TOTAL P_W_C	$37,000,000	$7,400,000	$11,353,000	$55,753,000	100%
9	Group 2 Equipment		$0	$5,154,000	$5,154,000	
10	TOTAL PROJECT	$37,000,000	$7,400,000 *	$16,507,000	$60,907,000	

ANALYTICAL DATA	CIRM funds	Matching+Other Funds	Total
Assignable square feet			38,907 ASF
Gross square feet			61,575 OGSF
Ratio (ASF Current / OGSF)			63.2% to 1.00
PWC Cost Per ASF	$951 /ASF	$482 /ASF	$1,433 /ASF
PWC Cost Per OGSF	$601 /OGSF	$305 /OGSF	$905 /OGSF
Equipment Cost Per ASF			$132 /ASF
Equipment Cost Per OGSF			$84 /OGSF

NOTES (line number):

1 Prime contract and subcontracts for construction work subject to prevailing wage requirements

2 Construction support activities are performed by other than prime contractor or subcontractors such as institutional service (e.g. utility shutdowns,locksmith, commissioning, etc).

3 The portion of design fees related to structural engineering and seismic safety plan check

4 The remaining design fees (i.e. total design fees less line 3 amount)

5 The amount budgeted for project management inspections, testing, permits

7 The amount budgeted for change orders during construction; any net savings (after augmentations) will be shared with CIRM

9 The amount budgeted for inventorial (Group 2) equipment to be capitalized as part of the project; leverage may include dona

10* The amount budgeted for matching funds must equal 20 percent of the CIRM funding.

Applicant: UC Irvine

Stem Cell Research Building

COST PLAN SUMMARY		
P or W Submittal		
	Construction Cost ($X1,000)	
1. Foundations		386
2. Vertical Structure		2,910
3. Floor & Roof Structures		3,648
4. Exterior Cladding		4,430
5. Roofing & Waterproofing		509
Shell (1-5)		*11,883*
6. Interior Partitions, Doors & Glazing		1,643
7. Floor, Wall & Ceiling Finishes		1,538
Interiors (6-7)		*3,181*
8. Function Equipment & Specialties		4,532
9. Stairs & Vertical Transportation		689
Equipment &Vertical Transportation		*5,221*
10. Plumbing Systems		3,362
1 1. Heating, Ventilating & Air Conditioning		6,699
12. Electric Lighting, Power & Communications		3,521
13. Fire Protection Systems		411
Mechanical & Electrical		*13,993*
Total Building Construction (1-13)		34,278
14. Site Preparation & Demolition		233
15. Site Paving, Structures & Landscaping		1,741
16. Utilities on Site		2,774
Total Site Construction (14-16)		4,748
TOTAL BUILDING & SITE (1-16)		39,026
General Conditions	*12.00%*	4,683
Subtotal		43,709
Contractor's Overhead & Profit or Fee	*5.00%*	2,185
ESTIMATED CONSTRUCTION BUDGET		45,895
(at time of award)		

CUMMING CORPORATION

BUILDING VALUE THROUGH EXPERTISE

University of California, Irvine
Stem Cell Research Center Building
Irvine, California

Statement of Probable Cost (R7)
February 18, 2008
CCorp Project No. 07-00868.00

Prepared for UC Irvine

1970 BROADWAY, SUITE 630 • OAKLAND • CALIFORNIA • 94612
PHONE: 510-463-0100 • FAX: 510-463-0305

INTRODUCTION

1. Basis Of Estimate

This statement has been prepared with the following documentation received from University of California, Irvine (received October 12th, 2007 along with verbal direction from Cliff Stokes).

Volume 1

A **Floor Plan Drawings:** First Floor, Second Floor and Third Floor.

2. Items Not Included Within Estimate

The following cost items are excluded from this estimate.

A Professional fees, inspections and testing.
B Escalation beyond August 2009.
C Plan check fees and building permit fees.
D Furnishings, fixtures and equipment (FF&E), except built-in cabinets, counters and other casework indicated.
E Major site and building structures demolition unless noted in body of estimate.
F Costs of hazardous material surveys, abatements, and disposals unless noted in estimate.
G Costs of offsite construction unless noted in estimate.
H Blasting of rock
I Construction contingency costs.
J LEED Commissioning.
K Site utilities beyond scope described in estimate.
L This revised estimate includes narratives, comments and revisions by Cliff Stokes emails dated 1/7/2008, 2/7/2008 and 2/11/2008.

3. Notes

We recommend that the client review this statement, and that any interpretations contrary to those intended by the design documents be fully addressed. The statement is based upon a detailed measurement of quantities, when possible, and reasonable allowances for items not clearly defined in the documents.

The statement reflects probable construction costs obtainable in a competitive and stable bidding market. This estimate is based upon a minimum of three competitive bids from qualified general contractors, with bids from a minimum of two (2) subcontractors per trade. This statement is a determination of fair market value for the construction of the project and is not intended to be a prediction of low bid. Experience indicates that a fewer number of bidders may result in a higher bid amount, and more bidders may result in a lower bid result.

Historical cost data indicate that the number of competitive bids obtained can have the following effect :

I bidder	+15% to +40%
2 to 3 bids	+8% to +12%
4 to 5 bids	-4% to +4%
6 to 7 bids	-5% to -7%
More than 8 bids	-12% to -8%

Basis of Budget Cost Plan

Budget Cost Plan Prepared From

Preliminary information developed by the University of California

Conditions of Construction

The pricing is based on the following general conditions of construction:

A start date of September 2008.

A construction period of 22 months.

The project will be procured using a modified design -build method (design development through construction).

The general contract will be competitively bid with 3-4 prequalified general contractors.

Major subcontract packages will be competitively bid with qualified subcontractors .

There will not be small business set aside requirements.

The contractor will be required to pay prevailing wages.

There are no phasing requirements.

The general contractor will have full access to the site during normal business hours.

Inclusions

The project consists of a new three story wet lab of 61,575 gross square feet. The budget plan includes the following assumptions for building systems:

Foundations include excavation and removal, shallow spread footing foundations, elevator pits and perforated drain pipes.

The structure of the building is assumed to be a structural poured in placed concrete shear wall frame supporting upper floors and roofs of poured in place concrete. Allowances are also included for vibration isolation, mechanical equipment pads, and miscellaneous metal supporting framing.

Exterior cladding ratio of 0.85 is based on the preliminary massing plan. The cost plan includes metal stud framing, exterior sheathing, batt insulation, painted gypsum board interior finish, aluminum framed insulated glass curtainwall and fixed and operable windows, aluminum glazed entry doors and hollow metal exit doors. Allowances are also included for sunscreens and canopies and soffit finishes

Roofing and waterproofing includes waterproofing to elevator pits and retaining walls, single ply PVC over rigid, tapered insulation and allowances for walkway pads, flashings and miscellaneous sheetmetal work, and caulking and sealants.

Interior partitions include metal stud framing with batt insulation and painted gypsum board linings, interior glazing, and wood doors in hollow metal frames. Acoustic partitions are provided at the required locations. Interior

Basis of Budget Cost Plan

finishes include carpet/sheet vinyl/vinyl composition tile/ ceramic tile floors, ceramic tile and resilient rubber bases, ceramic wall tile at restrooms and allowances for acoustic and wood panels, column furring and finish, and a combination of suspended acoustic tile and painted gypsum board ceilings.

Function equipment includes general building items such as toilet partitions and accessories, code and room identification signage, window blinds and fire extinguishers. Also included are enviornmental rooms, laboratory shelving and laboratory millwork, fumehoods, glasswash/autoclave, built-in cabinets and countertops, ceiling mounted projectors and motorized projection screens.

Vertical transportation includes one open exterior stair connecting three levels, two semi enclosed fire exit stairs with painted metal railings, one passenger and one freight elevator. It is assumed that one stair way will continue to the roof.

Plumbing includes sanitary fixures, lab and general, gas piping, vacuum, compressor air, waste, vent and domestic service pipework, hose bibbs and floor drains, water heating equipment and roof drainage.

HVAC includes campus fed chilled and high temperature hot water, thermal expansion compensation and circulation, hydronic pipework distribution, roof top air handling units, and exhaust fans, 24-hour service fan coil units, VAV boxes, air distribution systems, building management controls and unit ventilation.

Electrical includes main, emergency , machine, equipment and user convenience power, lighting, lighting controls, telephone/data (conduit only), MATV and audio /visual systems (conduit only), and fire alarm system.

Fire Protection includes automatic wet sprinkler system - complete.

Site preparation includes removal of asphalt paving and general site clearing and rough grading.

Site development includes allowances for hardscape (50%) and softscape (50%) of the finished site area. Also included an allowance to rework the existing loading dock so that it remains accessible during construction.

Site utilities include domestic and fire water, sewer, gas, chilled and high temperature hot water, stormwater drainage, electrical mains power and telecommunications/signals (conduit only), and connections to existing infra-structure.

CONSTRUCTION COST SUMMARY

	Element	Area	Cost/SF	Total
	BASE SCOPE			
1	Stem Cell Research Center Building	61,575 SF	$654.68	$40,312,000
2	Sitework	70,811 SF	$78.84	$5,583,000
	Total Escalated Cost (August 2009)	61,575 SF	$745.35	$45,895,000
	ADD - UCI COST			
3	Flood Insurance			$40,000
4	Telecommunication / Data			$1,479,000
5	HVAC Rebalance			$150,000
6	All Risk Insurance			$60,000
	Total Construction Cost (With Add UCI Costs)	61,575 SF	$773.43	$47,624,000

Stem Cell Research Center Building

University of California, Irvine
Floor 1
Schedule of Areas & Control Quantities
Schematic Statement of Probable Cost - Revised R1

02/18/08

Schedule of Areas	SF	SF
Enclosed Areas		
First	18575	
Second	21500	
Third	21500	
Subtotal, Enclosed Areas		**61,575**
Unenclosed / Covered Areas		
Unenclosed / Covered Areas@ 50%		
Total Gross Floor Area		**61,575**

Control Quantities	Qty		Ratio to Gross Area
Number of stories	3	ea	0.00
Gross Area	61,575	sf	1.00
Enclosed Area	61,575	sf	0.99
Unenclosed / Covered Area	-	sf	0.02
Footprint Area	18,575	sf	0.21
Footprint Perimeter	975	lf	0.01
1st Floor Perimeter	975	lf	0.01
2nd Floor Perimeter	975	lf	0.01
3rd Floor Perimeter	975	lf	0.00
Gross Wall Area	46,800	sf	0.58
Retaining Wall Area	-	sf	0.16
Retaining Wall Perimeter	-	sf	0.01
Finished Wall Area	32,760	sf	0.44
Windows or Glazing Area	14,040	sf	0.20
Roof Area - Flat	21,000	sf	0.10
Roof Area-Terrace	-	sf	0.01
Green Roof	-	sf	0.07
Roof Area - Sloped	-	sf	-
Roof Area - Total	21,000	sf	0.21
Finished Area	61,575	sf	0.99
Shelled Area	-	sf	
Elevators	2	ea	

University of California, Irvine **Project #: 07-00868.00**
Statement of Probable Cost (R7) **02/18/08**
Stem Cell Research Center Building

Stem Cell Research Center Building Construction Cost Summary

Element	Subtotal	Total	System Cost/SF	Overall Cost/SF
A) Shell (1-5)		**$11,884,612**		**$193.01**
1 Foundations	$386,422		$6.28	
2 Vertical Structure	$2,910,338		$47.26	
3 Floor & Roof Structures	$3,648,344		$59.25	
4 Exterior Cladding	$4,430,208		$71.95	
5 Roofing and Waterproofing	$509,300		$8.27	
B) Interiors (6-7)		**$3,180,962**		**$51.66**
6 Interior Partitions, Doors and Glazing	$1,642,640		$26.68	
7 Floor, Wall and Ceiling Finishes	$1,538,322		$24.98	
C) Equipment and Vertical Transportation (8-9)		**$5,220,732**		**$84.79**
8 Function Equipment and Specialties	$4,532,298		$73.61	
9 Stairs and Vertical Transportation	$688,435		$11.18	
D) Mechanical and Electrical (10-13)		**$13,992,605**		**$227.24**
10 Plumbing Systems	$3,362,220		$54.60	
11 HVAC	$6,698,893		$108.79	
12 Electrical Lighting, Power and Communications	$3,520,423		$57.17	
13 Fire Protection Systems	$411,069		$6.68	
Subtotal		**$34,278,912**		$556.70
Gen'l Cond, Bonds and Insurance 12.00%		**$4,113,469**		$66.80
Subtotal		**$38,392,381**		$623.51
General Contractor's Fee 5.00%		**$1,919,619**		$31.18
Subtotal		**$40,312,000**		$654.68
TOTAL CONSTRUCTION COST		**$40,312,000**		**$654.68**

Total Area: 61,575 SF

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
1 Foundations				
Excavation - n/a				
Basement cut	6,054	cy		not required
Backfill at basements	1,211	cy		not required
Off haul surplus material	9,687	cy		not required
Footings				
Concrete	200	cy	$327.25	$65,450
Formwork	10,800	sf	$12.25	$132,324
Reinforcing steel	36,000	lb	$1.24	$44,768
Excavation	1,400	cy	$23.55	$32,968
Backfill	1,200	cy	$22.03	$26,435
Haul excess	200	cy	$25.04	$5,009
Elevator pits				
Elevator pits	2	ea	$21,598.50	$43,197
Miscellaneous				
Miscellaneous foundations	61,575	sf	$0.59	$36,271
Total - 1 Foundations				***$386,422***
2 Vertical Structure				
Concrete Shear Walls				
Concrete	1,005	cy	$327.25	$328,973
Rebar	180,948	lb	$1.24	$223,833
Formwork	70,800	sf	$21.13	$1,496,086
Finish	35,400	sf	$1.77	$62,557
Concrete columns				
Concrete, in place	322	cy	$373.07	$120,137
Reinforcement	161,013	lb	$1.24	$199,174
Formwork	13,440	sf	$26.18	$351,859
Finish to concrete	13,440	sf	$4.90	$65,868
Additional struts at pilasters	105	loc	$589.05	$61,850
Total - 2 Vertical Structure				***$2,910,338***
3 Floor & Roof Structures				
Slab On Grade				
Concrete include placing	396	cy	$327.25	$129,463
Reinforcing steel	23,219	lb	$1.24	$28,722
Edge form	975	lf	$10.60	$10,338
Aggregate base, 6"	18,575	sf	$2.47	$45,955
Finish	18,575	sf	$0.88	$16,386

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
Vapor barrier	18,575	sf	$0.53	$9,847
Sub slab drain, allowance	18,575	sf	$1.53	$28,448
Above Grade Floors				
Concrete upper floors - complete	43,000	sf	$51.05	$2,195,193
Concrete Beams				
Concrete beams, 30" x 18" - complete	4,388	lf	$261.80	$1,148,648
Concrete Housekeeping Pads	1	ls	$5,890.50	$5,891
Curbs	1	ls	$29,452.50	$29,453
Total - 3 Floor & Roof Structures				***$3,648,344***
4 Exterior Cladding				
Exterior Walls				
Exterior Concrete Enclosure				
Architectural finish concrete enclosure	18,720	sf	$70.69	$1,323,242
Metal Stud Framing				
Exterior skin (measured gross)	4,680	sf	$20.94	$98,018
Furring to interior face of concrete enclosure	18,720	sf	$10.47	$196,036
Roof screen	2,600	sf	$17.08	$44,414
Sheathing				
Exterior walls	4,680	sf	$5.24	$24,504
Batt Insulation				
Exterior walls	46,800	sf	$1.57	$73,513
Gypsum board, 5/8" thick				
At exterior walls	42,120	sf	$5.04	$212,270
Exterior finishes				
Metal panel	4,680	sf	$58.91	$275,675
Curtain wall	7,020	sf	$129.59	$909,729
Punched openings	7,020	sf	$100.14	$702,972
Exterior Doors				
Double leaf - glazed	5	pr	$10,602.90	$53,015
Double leaf - HM	2	pr	$4,241.16	$8,482
Single leaf - glazed	6	ea	$5,537.07	$33,222
Single leaf - HM	6	ea	$2,827.44	$16,965
Miscellaneous Items				
Exterior shading, skin enhancements, canopies	1	ls	$458,150.00	$458,150
Total - 4 Exterior Cladding				***$4,430,208***
5 Roofing and Waterproofing				
Waterproofing				
Elevator pit, base and walls - included				

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
Miscellaneous waterproofing	61,575	sf	$0.18	$10,881
Roofing				
Single ply roofing	18,575	sf	$8.07	$149,900
Rigid insulation	18,575	sf	$5.30	$98,474
Roof Walk Pads	800	sf	$8.84	$7,069
Flashing & Counterflashing	18,575	sf	$2.36	$43,766
Caulking & Sealants, Exterior	61,575	sf	$0.29	$18,135
Soffits	1,500	sf	$94.25	$141,372
Miscellaneous				
Roof hatches, roof ladders, allowance	2	ea	$3,675.67	$7,351
Scuppers and downspouts, splash blocks	1	ls	$7,351.34	$7,351
Window washing davits, allowance	1	ls	$25,000.00	$25,000
Total - 5 Roofing and Waterproofing				***$509,300***
6 Interior Partitions, Doors and Glazing				
Interior Partitions				
Metal studs, drywall, insulation, complete	33,866	sf	$26.18	$886,618
Shaft walls	3,840	sf	$35.34	$135,717
Miscellaneous furring, feature partitions	61,575	sf	$0.59	$36,271
Interior glazing				
Interior glazing, allowance	1,500	sf	$76.58	$114,865
Interior doors				
Single	140	ea	$2,618.00	$366,520
Double	18	pr	$4,427.96	$79,703
Premiums				
Panic hardware, automatic door openers, etc.	1	ls	$20,000.00	$20,000
Access doors	1	ls	$2,945.25	$2,945
Total - 6 Interior Partitions, Doors and Glazing				***$1,642,640***
7 Floor, Wall and Ceiling Finishes				
Floors (inc. base)				
Carpet	20,875	sf	$6.55	$136,627
Ceramic	1,500	sf	$23.56	$35,343
Sealed Concrete	4,000	sf	$3.61	$14,458
Sheet vinyl	35,200	sf	$7.95	$279,917
Walls				
Paint walls	80,500	sf	$0.94	$75,870

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
Ceramic tile	3,500	sf	$22.97	$80,405
Epoxy paint	15,000	sf	$8.84	$132,536
Ceiling				
Acoustical ceiling tile	20,200	sf	$6.83	$138,026
Acoustical ceiling tile - mylar	15,000	sf	$9.42	$141,372
Drywall ceiling / soffit (including framing & paint)	26,375	sf	$14.14	$372,869
Feature Finishes				
Allowance	1	ls	$130,900.00	$130,900
Total - 7 Floor, Wall and Ceiling Finishes				***$1,538,322***
8 Function Equipment and Specialties				
Restroom Specialties				
Cubicles and fixed specialties	1	ls	$58,905.00	$58,905
Laboratory Equipment				
Sterilizers, glasswash, hoods, carts, emergency stations, autoclaves, controlled environment rooms, etc.	61,575	sf	$11.78	$725,415
Lab Casework				
Base units, lab stations, inbuilt specialties	61,575	sf	$47.12	$2,901,660
Casework - Non Lab				
All remaining cabinetry	61,575	sf	$5.89	$362,708
Remaining Building Specialties				
Allowance	61,575	sf	$7.85	$483,610
Miscellaneous Loading Equipment				
Loading dock equipment, allowance - not required				
Total - 8 Function Equipment and Specialties				***$4,532,298***
9 Stairs and Vertical Transportation				
Stairs				
Concrete Stairwells				
Allowance - stairflights complete	8	flt	$23,562.00	$188,496
Miscellaneous				
Ships ladder, allowance (to roof level)	1	ea	$11,027.02	$11,027
Elevators				
Passenger, 3-stop	1	ea	$247,401.00	$247,401

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
Service	1	ea	$241,510.50	$241,511
Total - 9 Stairs and Vertical Transportation				***$688,435***
10 Plumbing Systems				
Main Shell Plumbing				
Main Shell Plumbing	61,575	ls	$4.90	$301,773
Roof Drainage				
Roof Drainage, Allowance	61,575	sf	$1.84	$113,165
Condensate Drainage				
Condensate drainage	61,575	sf	$0.82	$50,547
Natural gas, service and distribution - non-lab	1	ls	$30,630.60	$30,631
Lab Plumbing				
Lab Plumbing	38,300	sf	$67.39	$2,580,934
Offices				
Plumbing systems	23,275	sf	$12.25	$285,171
Total - 10 Plumbing Systems				***$3,362,220***
11 HVAC				
Main Shell HVAC				
Chilled water				
Chiller, centrifugal, water cooled, 300 to 600 tons	61,575	sf	$6.64	$408,650
Heating hot water				
Heating hot water	61,575	sf	$4.19	$257,764
HTHW				
HTHW	61,575	sf	$2.25	$138,312
Condenser water				
Condenser water	61,575	sf	$4.08	$251,477
Air-Side Equipment				
Air-Side Equipment	61,575	sf	$4.90	$301,773
Research Labs				
Wet side HVAC				
CHW / HHW / process distribution	38,300	sf	$5.89	$225,606
Air-side equipment	38,300	sf	$32.73	$1,253,368
Air distribution	38,300	sf	$44.51	$1,704,580
HVAC controls	38,300	sf	$11.78	$451,212
Offices				
Wet side HVAC				

Stem Cell Research Center Building Detail Elements

Element	Quantity	Unit		Total
CHW / HHW / process distribution	23,275	sf	$5.89	$137,101
Air-side equipment	23,275	sf	$26.18	$609,340
Air distribution	23,275	sf	$31.42	$731,207
HVAC controls	23,275	sf	$9.82	$228,502
Total - 11 HVAC				***$6,698,893***
12 Electrical Lighting, Power and Communications				
Power and Lighting				
Power and Lighting	61,575	sf	$18.79	$1,156,795
Special Systems				
Fire Alarm	61,575	sf	$31.42	$1,934,440
Telephone / Data System				
Telecomm/Data System	61,575	sf	$6.97	$429,188
Total - 12 Electrical Lighting, Power and Communications				***$3,520,423***
13 Fire Protection Systems				
Fire Sprinklers				
Automatic Sprinkler System	61,575	sf	$6.68	$411,069
Total - 13 Fire Protection Systems				***$411,069***

Sitework

Sitework Construction Cost Summary

Element		Subtotal	Total	Cost / SF	Cost / SF
E) Site Construction (14-16)			**$4,747,460**		**$67.04**
14 Site Preparation and Demolition		$233,000		$3.29	
15 Site Paving, Structures and Landscaping		$1,740,650		$24.58	
16 Utilities on Site		$2,773,810		$39.17	
Subtotal			**$4,747,460**		$67.04
Gen'l Cond, Bonds and Insurance	12.00%		**$569,695**		$8.05
Subtotal			**$5,317,156**		$75.09
General Contractor's Fee	5.00%		**$265,858**		$3.75
Subtotal			**$5,583,000**		$78.84
TOTAL CONSTRUCTION COST			**$5,583,000**		**$78.84**

Total Area: 70,811 SF

Sitework Detail Elements

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Demo and Removal				
Miscellaneous demolition	1	ls	$100,000.00	$100,000
Grading				
Cut / fill	4,859	cy	$9.92	$48,191
Export	2,000	cy	$23.56	$47,120
Building pad prep	38,375	sf	$0.30	$11,513
Fine grading	50,000	sf	$0.52	$26,178
Total - 14 Site Preparation and Demolition				***$233,000***
15 Site Paving, Structures and Landscaping				
Site Improvements				
Concrete walks - colored	25,000	sf	$19.63	$490,830
Concrete walks - natural	7,500	sf	$16.30	$122,217
Concrete pavers	5,645	sf	$39.27	$221,676
Loading dock - 68' x 35'	2,975	sf	$32.72	$97,348
Steps on grade	875	sf	$41.88	$36,649
Seat walls - 18"	188	lf	$340.31	$63,808
Site retaining walls	250	lf	$392.66	$98,166
Curb and gutter	2,500	lf	$26.18	$65,444
AC paving	10,000	sf	$4.19	$41,884
Striping	10,000	sf	$0.26	$2,618
Concrete trenching	205	lf	$98.17	$20,124
Precast tunnel lid	1,845	sf	$39.27	$72,446
Waterproofing for tunnel	3,690	sf	$10.47	$38,638
Site drainage service	1,000	lf	$65.44	$65,444
Area drains	50	ea	$589.00	$29,450
Irrigation	25,000	sf	$2.00	$50,000
Soil prep	25,000	sf	$0.65	$16,361
Trees - 36" box	38	ea	$654.44	$24,541
Shrubs - 1 gallon	500	ea	$11.78	$5,890
Shrubs - 4 gallon	500	ea	$52.36	$26,178
Imported topsoil	925	cy	$39.27	$36,321
Site lighting	50	ea	$1,177.99	$58,900
PVC conduit with wire and trenching	1,000	lf	$26.18	$26,178
Concrete bases for lighting	50	ea	$458.11	$22,905
Site protection	1	ls	$6,634.06	$6,634
Total - 15 Site Paving, Structures and Landscaping				***$1,740,650***
16 Utilities on Site				
Water				
4' - 6" service	250	lf	$49.74	$12,434
8" service	500	lf	$58.90	$29,450
Tees / bends	5	ea	$490.83	$2,454

Sitework Detail Elements

Element	Quantity	Unit	Unit Cost	Total
Backlfow assembly / FD connection	1	ea	$10,994.59	$10,995
8" GV & box	1	ea	$1,963.32	$1,963
4 - 6" GV & box	1	ea	$883.49	$883
Water meter	1	ea	$654.44	$654
Water hydrant	1	ea	$5,366.41	$5,366
Miscellaneous fittings	1	ls	$4,581.08	$4,581
Thrust blocks	4	ea	$373.03	$1,492
Connections	1	ls	$3,272.20	$3,272
Storm Drain				
Storm drain allowance	1	ls	$392,663.95	$392,664
Sewer				
6" service	113	lf	$113.87	$12,811
6" service relocate	100	lf	$123.03	$12,303
Relocate cleanout	1	ea	$2,355.98	$2,356
Connect to existing	3	ea	$3,272.20	$8,180
Miscellaneous	1	ls	$4,581.08	$4,581
Hi Temp Hot Water				
Connections	1	ls	$13,088.80	$13,089
HTHW piping - 6"	1,125	lf	$163.61	$184,061
Pipe insulation	1,125	lf	$91.62	$103,074
Mounting bracket	56	ea	$589.00	$33,131
Valves	3	ea	$3,926.64	$9,817
Chilled Water				
Connect to existing	1	ls	$9,816.60	$9,817
Chilled water service, 14"	1,125	lf	$215.97	$242,961
Pipe insulation	1,125	lf	$78.53	$88,349
Mounting brackets	56	ea	$589.00	$33,131
Valves	3	ea	$9,816.60	$24,541
Power				
High voltage distribution panel	1	ea	$78,532.79	$78,533
Intercept utility - normal power	1	ls	$6,544.40	$6,544
Intercept utility - emergency power	1	ls	$6,544.40	$6,544
Demo / patch surfaces	1	ls	$26,177.60	$26,178
5" pvc conduit	1,000	lf	$109.95	$109,946
5" pvc coated rigid elbow	4	ea	$1,177.99	$4,712
Pullrope	10	clf	$39.27	$393
Trenching	666	cy	$65.44	$43,586
Sand in trench	60	cy	$65.44	$3,927
Concrete in trench	100	cy	$163.61	$16,361
Wire high voltage, epr cu #4	15	clf	$523.55	$7,853
Wire high voltage, epr cu #4/0	43	clf	$948.94	$40,804
High voltage terminations	18	ea	$785.33	$14,136
High voltage splice 34/0 to #500 mcm	6	ea	$1,243.44	$7,461
Communications				

Sitework Detail Elements

Element	Quantity	Unit	Unit Cost	Total
Intercept existing utility	1	ea	$3,272.20	$3,272
Telcom equipment	1	ls	$425,385.95	$425,386
Demo / patch surfaces	1	ls	$1,963.32	$1,963
4" pvc conduit	2,000	lf	$31.41	$62,826
4" pvc coated rigid elbow	4	ea	$578.52	$2,314
Pullrope	20	clf	$45.81	$916
Trenching - hard conditions	18	cy	$49.74	$895
Sand in trench	5	cy	$58.90	$294
Concrete in trench	5	cy	$242.14	$1,211
Miscellaneous site power	1	ls	$7,341.51	$7,342
Miscellaneous				
Miscellaneous site utilities - natural gas and reclaimed water - allowance	1	ls	$652,000.00	$652,000
Total - 16 Utilities on Site				***$2,773,810***

UC Irvine Stem Cell Research Building

LEVERAGE FUND CALCULATION		
Leverage Funds:		
total "other" funds from CIB Budget		$ 16,507,000
Adjustments		
Amount budgeted for fees exc struc	$ 5,212,000	
Construction Amount x 10 percent	$ 4,762,400	
Amount Admin/design exceeds 10% (deduction)		$ 449,600
Net Leverage funds		$ 16,057,400
CIRM Funds	$ 37,000,000	
Ratio of Leverage to CIRM Funds		**0.43**
Matching Funds	$ 7,400,000	
Leverage+ match Ratio to CIRM funds		**0.63**
Percentage of Project funded by CIRM	**61.2%**	
Percentage of Project funded by Applicant (after leverage adjustment)	**38.8%**	

DRAWDOWN SCHEDULE FOR RFA 07-03

entry cells	calc cells

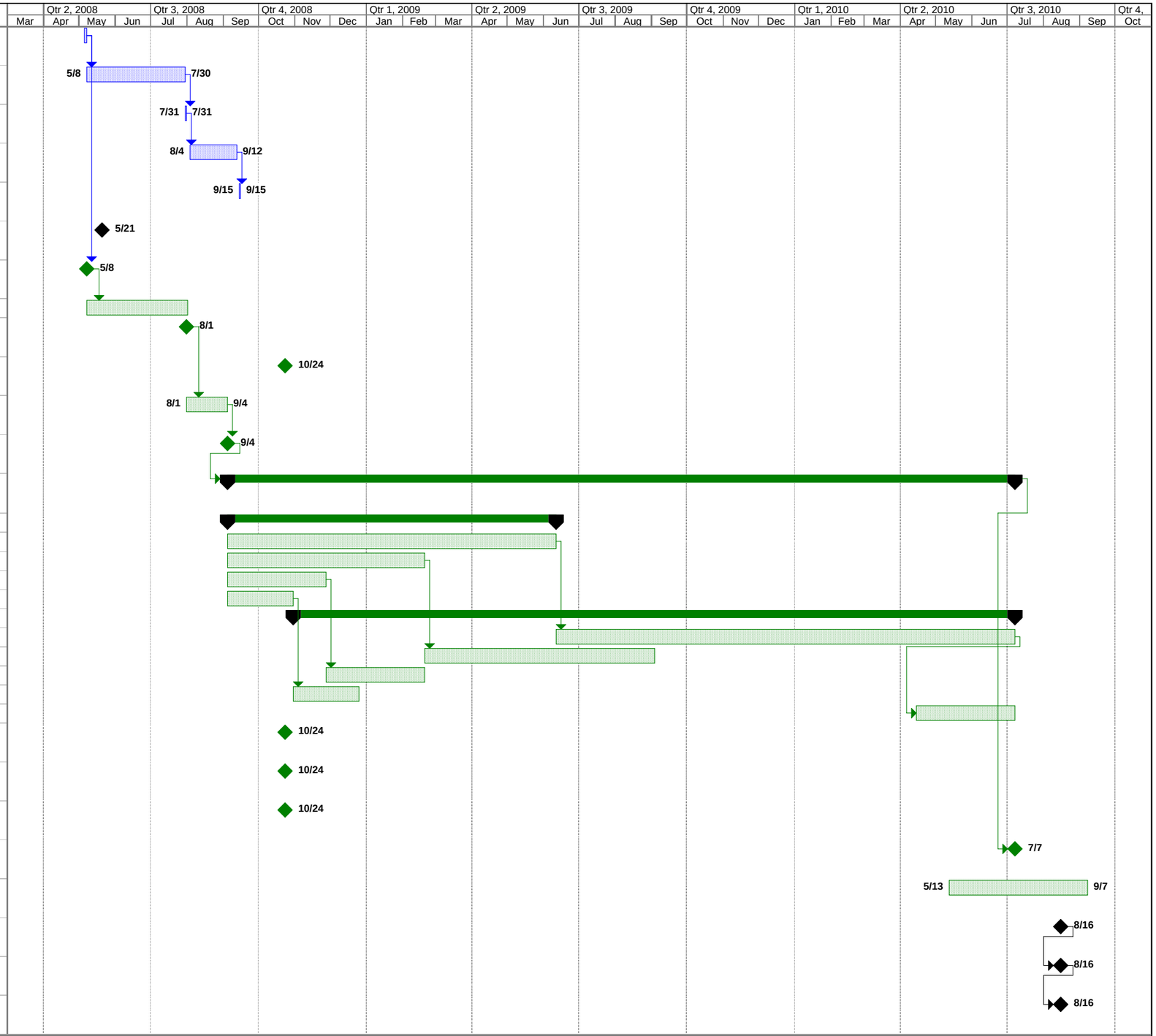
UC Irvine Stem Cell Research Building

Project Costs	$ 60,907,000	To be spent:	Cirm amount:	$ 37,000,000
Spent to date	$ 1,602,900		Institutional Amount	$ 23,907,000
Amount to Draw	$ 59,304,100			

Project Award Date 01-Jul-08

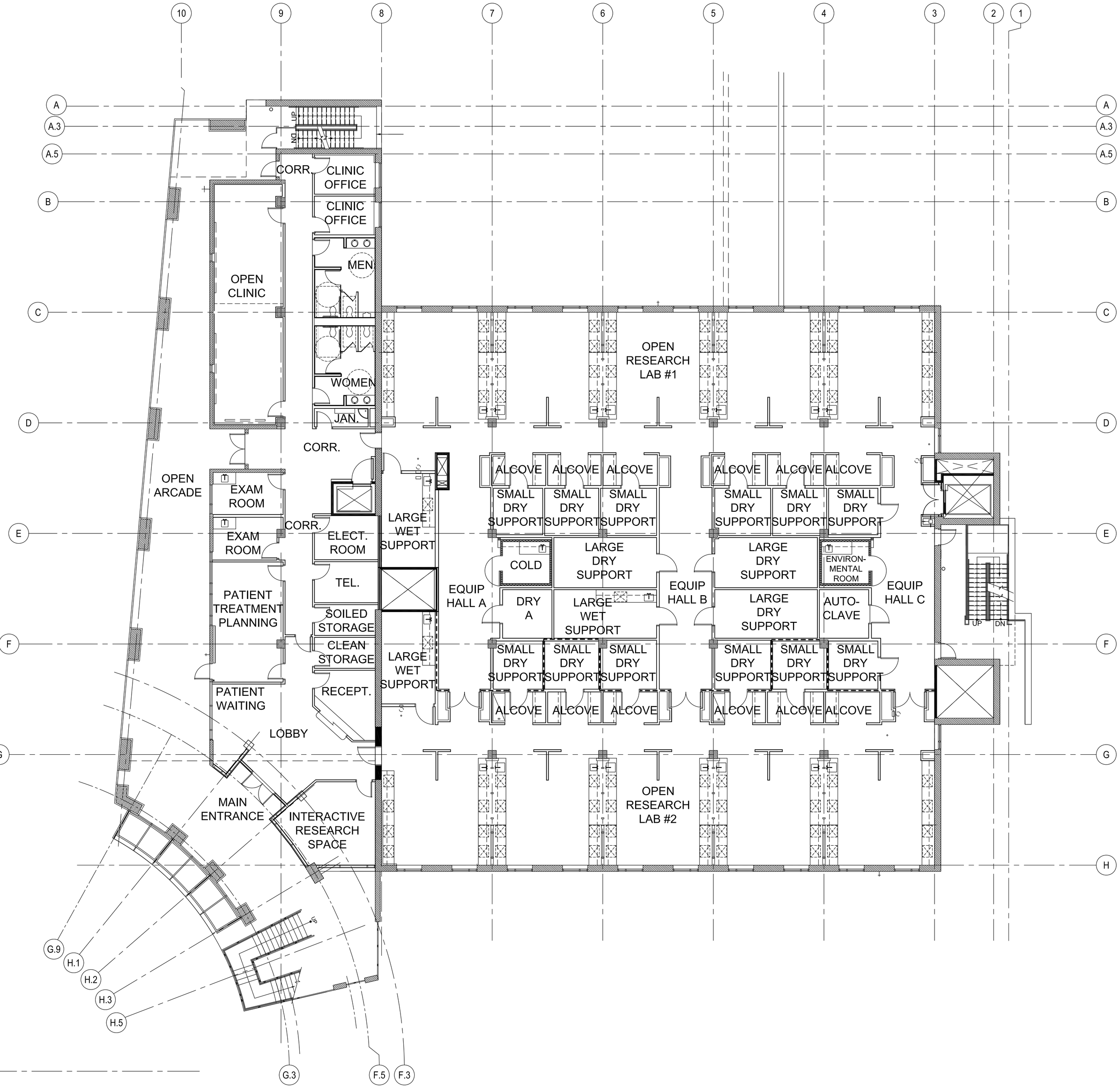
	percent draw	Monthly Draw	Cumulative Draw	Monthly CIRM Funds	Cumulative CIRM Funds	Monthly Institutional (match + leverage)	Cumulative Institutional Funds
Spent to Date			$ 1,602,900				$ 1,602,900
Jul-08	0.34%	$ 203,225	$ 1,806,125	$ -	$ -	$ 203,225	$ 1,806,125
Aug-08	0.25%	$ 147,948	$ 1,954,073	$ -	$ -	$ 147,948	$ 1,954,073
Sep-08	2.66%	$ 1,577,092	$ 3,531,165	$ -	$ -	$ 1,577,092	$ 3,531,165
Oct-08	6.53%	$ 3,869,644	$ 7,400,809	$ -	$ -	$ 3,869,644	$ 7,400,809
Nov-08	4.42%	$ 2,620,292	$ 10,021,102	$ -	$ -	$ 2,620,292	$ 10,021,102
Dec-08	3.92%	$ 2,323,055	$ 12,344,157	$ -	$ -	$ 2,323,055	$ 12,344,157
Jan-09	3.25%	$ 1,924,599	$ 14,268,756	$ -	$ -	$ 1,924,599	$ 14,268,756
Feb-09	3.38%	$ 2,002,158	$ 16,270,913	$ -	$ -	$ 2,002,158	$ 16,270,913
Mar-09	3.01%	$ 1,784,412	$ 18,055,325	$ -	$ -	$ 1,784,412	$ 18,055,325
Apr-09	4.81%	$ 2,853,230	$ 20,908,555	$ -	$ -	$ 2,853,230	$ 20,908,555
May-09	4.88%	$ 2,891,560	$ 23,800,115	$ -	$ -	$ 2,891,560	$ 23,800,115
Jun-09	4.48%	$ 2,654,723	$ 26,454,838	$ 2,547,838	$ 2,547,838	$ 106,885	$ 23,907,000
Jul-09	8.46%	$ 5,016,497	$ 31,471,336	$ 5,016,497	$ 7,564,336	$ -	$ 23,907,000
Aug-09	9.12%	$ 5,411,357	$ 36,882,692	$ 5,411,357	$ 12,975,692	$ -	$ 23,907,000
Sep-09	5.96%	$ 3,536,143	$ 40,418,835	$ 3,536,143	$ 16,511,835	$ -	$ 23,907,000
Oct-09	7.49%	$ 4,443,589	$ 44,862,424	$ 4,443,589	$ 20,955,424	$ -	$ 23,907,000
Nov-09	5.95%	$ 3,527,499	$ 48,389,923	$ 3,527,499	$ 24,482,923	$ -	$ 23,907,000
Dec-09	3.17%	$ 1,881,213	$ 50,271,136	$ 1,881,213	$ 26,364,136	$ -	$ 23,907,000
Jan-10	2.58%	$ 1,528,498	$ 51,799,634	$ 1,528,498	$ 27,892,634	$ -	$ 23,907,000
Feb-10	2.87%	$ 1,700,327	$ 53,499,961	$ 1,700,327	$ 29,592,961	$ -	$ 23,907,000
Mar-10	2.46%	$ 1,457,023	$ 54,956,984	$ 1,457,023	$ 31,049,984	$ -	$ 23,907,000
Apr-10	3.12%	$ 1,851,127	$ 56,808,111	$ 1,851,127	$ 32,901,111	$ -	$ 23,907,000
May-10	1.73%	$ 1,027,179	$ 57,835,289	$ 1,027,179	$ 33,928,289	$ -	$ 23,907,000
Jun-10	1.78%	$ 1,054,685	$ 58,889,975	$ 1,054,685	$ 34,982,975	$ -	$ 23,907,000
Jul-10	0.93%	$ 552,818	$ 59,442,792	$ 552,818	$ 35,535,792	$ -	$ 23,907,000
Aug-10	0.65%	$ 386,204	$ 59,828,996	$ 386,204	$ 35,921,996	$ -	$ 23,907,000
Sep-10	1.65%	$ 980,605	$ 60,809,601	$ 980,605	$ 36,902,601	$ -	$ 23,907,000
Oct-10	0.04%	$ 26,639	$ 60,836,240	$ 26,639	$ 36,929,240	$ -	$ 23,907,000
Nov-10	0.04%	$ 21,481	$ 60,857,721	$ 21,481	$ 36,950,721	$ -	$ 23,907,000
Dec-10	0.08%	$ 49,279	$ 60,907,000	$ 49,279	$ 37,000,000	$ -	$ 23,907,000
Jan-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Feb-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Mar-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Apr-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
May-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Jun-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Jul-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Aug-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Sep-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Oct-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
Nov-11		$ -	$ 60,907,000	$ -	$ 37,000,000	$ -	$ 23,907,000
	100.00%	$ 59,304,100		$ 37,000,000		$ 22,304,100	

ID	Task Name	Duration	Start	Finish	Predecessors
1	ICOC decision on Grant	2 days	Tue 5/6/08	Wed 5/7/08	
2	Prepare Grant support information	60 days	Thu 5/8/08	Wed 7/30/08	1
3	Submit Grant support information to CIRM	1 day	Thu 7/31/08	Thu 7/31/08	2
4	CIRM prepares notice of Grant Award	30 days	Mon 8/4/08	Fri 9/12/08	3FS+1 day
5	Applicant signs NGA	1 day	Mon 9/15/08	Mon 9/15/08	4
6	Project funding approval	0 days	Wed 5/21/08	Wed 5/21/08	
7	Out to Bid	0 days	Thu 5/8/08	Thu 5/8/08	1
8	Bid Period	62 days	Thu 5/8/08	Fri 8/1/08	7
9	Proposals Due	0 days	Fri 8/1/08	Fri 8/1/08	
10	Project design approval	0 days	Fri 10/24/08	Fri 10/24/08	
11	Technical evaluation and award	25 days	Fri 8/1/08	Thu 9/4/08	9
12	Award Construction contract (NTP)	0 days	Thu 9/4/08	Thu 9/4/08	11
13	**Construction Contract Period**	**479 days**	**Fri 9/5/08**	**Wed 7/7/10**	**12**
14	**Prepare Construction Drawings**	**200 days**	**Fri 9/5/08**	**Thu 6/11/09**	
15	Architecture MEP Design	10 mons	Fri 9/5/08	Thu 6/11/09	
16	Structural Design	6 mons	Fri 9/5/08	Thu 2/19/09	
17	Foundation Design	3 mons	Fri 9/5/08	Thu 11/27/08	
18	Civil Design	2 mons	Fri 9/5/08	Thu 10/30/08	
19	**Construction Activities**	**439 days**	**Fri 10/31/08**	**Wed 7/7/10**	
20	Interior Build Out	279 days	Fri 6/12/09	Wed 7/7/10	15
21	Building Structure	7 mons	Fri 2/20/09	Thu 9/3/09	16
22	Foundation	3 mons	Fri 11/28/08	Thu 2/19/09	17
23	Site utilities	2 mons	Fri 10/31/08	Thu 12/25/08	18
24	Hardscape and Irrigation	3 mons	Thu 4/15/10	Wed 7/7/10	20FS-3 mons
25	Prepare Quarterly Funding request to CIRM	0 days	Fri 10/24/08	Fri 10/24/08	
26	Submit funding requests to CIRM	0 days	Fri 10/24/08	Fri 10/24/08	
27	CIRM issues funding up to 90%	0 days	Fri 10/24/08	Fri 10/24/08	
28	Beneficial occupancy	0 days	Wed 7/7/10	Wed 7/7/10	13
29	Equipment installation	4.2 mons	Thu 5/13/10	Tue 9/7/10	
30	Notice of Completion	0 days	Mon 8/16/10	Mon 8/16/10	
31	Request construction completion amount	0 days	Mon 8/16/10	Mon 8/16/10	30
32	CIRM issues final payment (100%)	0 days	Mon 8/16/10	Mon 8/16/10	31



Project: UCI_Stem_Cell_Building
Date: Wed 2/20/08

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone



Prepared by:

University of California, Irvine
Design & Construction Services
3500 Berkeley Place
Irvine, CA 92697

PROJECT:

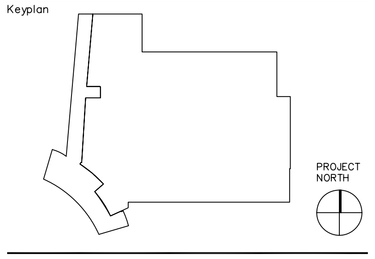
UCI STEM CELL BUILDING

PROJECT NO: 994038

Seal

Issue No.	Description	Issue Date
1	SCHEMATIC	02/07/2007
2	SCHEMATIC	02/08/2008

Keyplan



Project Number
994038

Drawn by:

Reviewed by:

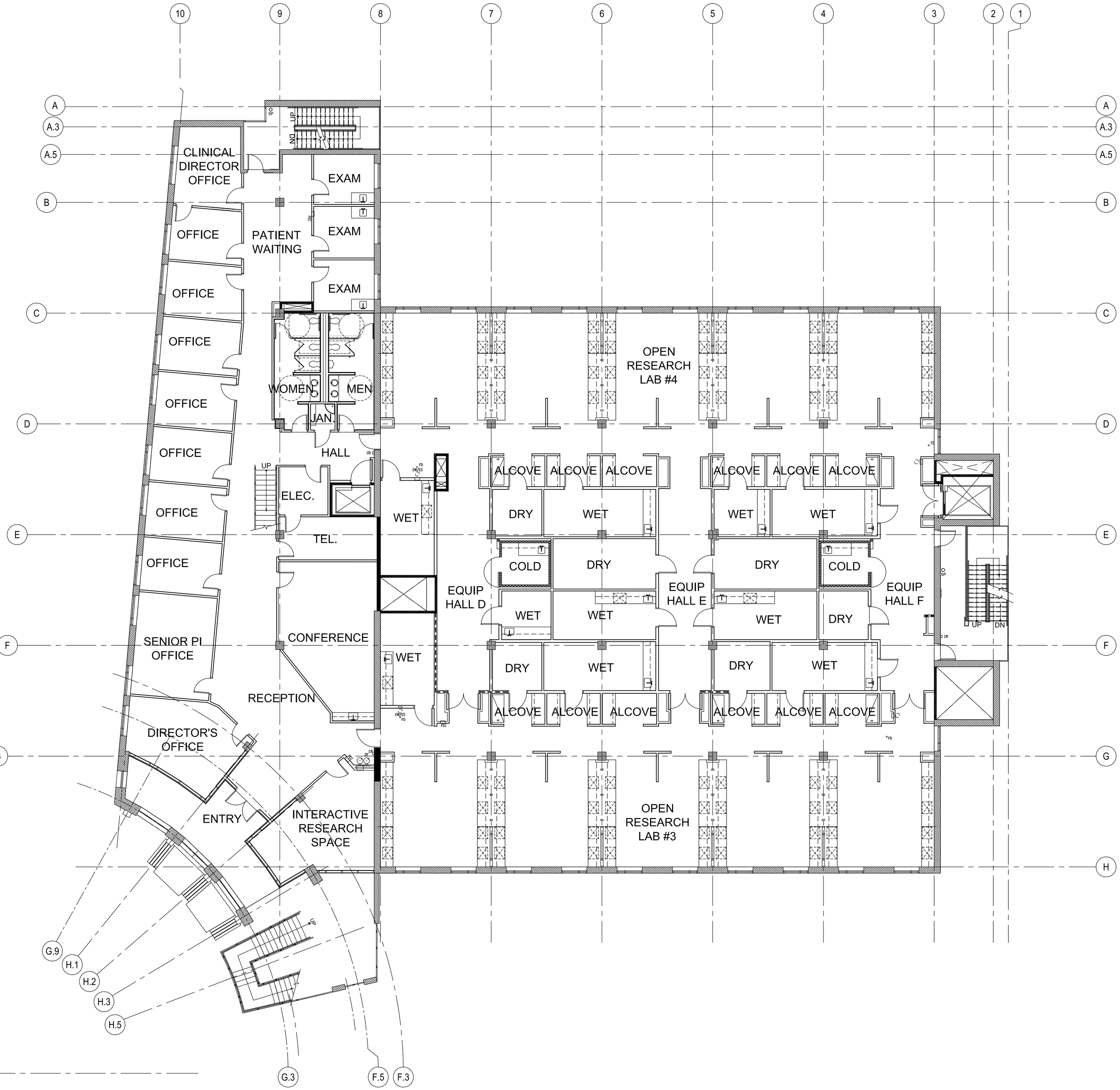
FIRST FLOOR PLAN

Scale: 1/8" = 1'-0"

Original drawing sheet is 30 " x 42 " Scale Accordingly If Reduced

DRAWING NUMBER

A02



Prepared by:

University of California, Irvine
Design & Construction Services
3500 Berkeley Place
Irvine, CA 92697

PROJECT:

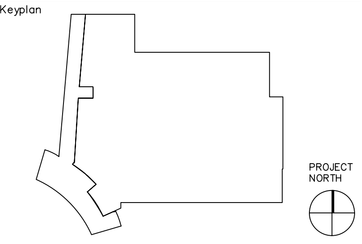
UCI STEM CELL BUILDING

PROJECT NO: 994038

Seal

Issue No.	Description	Issue Date
1	SCHEMATIC	02/07/2007
2	SCHEMATIC	02/08/2008

Keyplan



Project Number
994038

Drawn by:

Reviewed by:

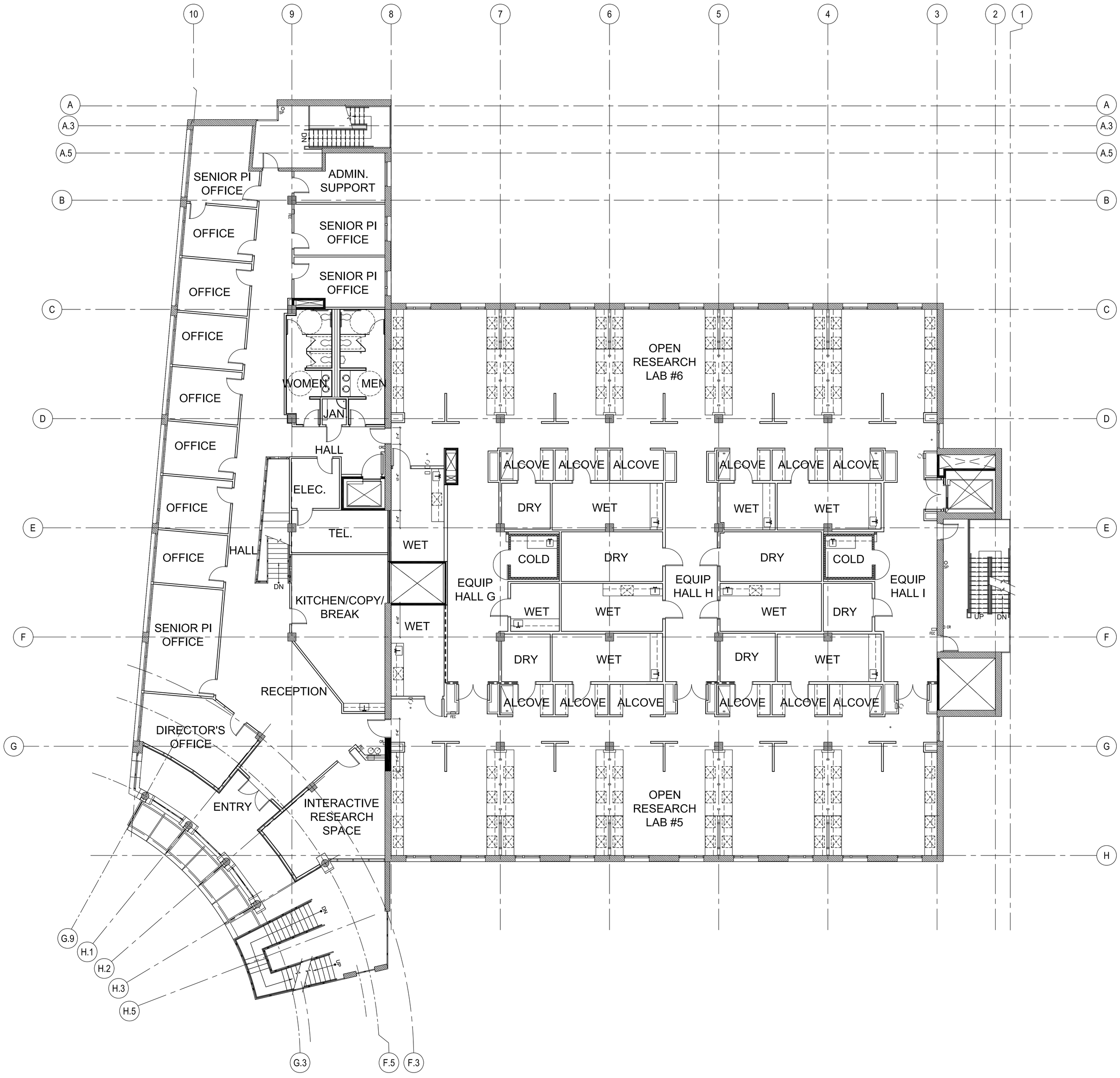
SECOND FLOOR PLAN

Scale: 1/8" = 1'-0"

Original drawing sheet is 30 " x 42 " Scale Accordingly If Reduced

DRAWING NUMBER

A03



UCI

Prepared by:

University of California, Irvine
Design & Construction Services
3500 Berkeley Place
Irvine, CA 92697

PROJECT:

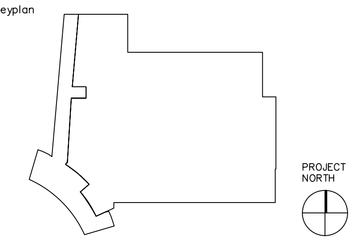
UCI STEM CELL BUILDING

PROJECT NO: 994038

Seal

Issue No.	Description	Issue Date
1	SCHEMATIC	02/07/2007
2	SCHEMATIC	02/08/2008

Keyplan



Project Number
994038

Drawn by:

Reviewed by:

THIRD FLOOR PLAN

Scale: 1/8" = 1'-0"

Original drawing sheet is 30 " x 42 " Scale Accordingly If Reduced

DRAWING NUMBER

A04

CAPITOL OFFICE
STATE CAPITOL
ROOM 4052
SACRAMENTO, CA 95814
TEL 916-651-4034

DISTRICT OFFICE
2323 NORTH BROADWAY
SUITE 302
SANTA ANA, CA 92706
TEL 714-558-4400
FAX 714-558-4111

SENATOR.CORREA@SENATE.CA.GOV

California State Senate

SENATOR
LOU CORREA
THIRTY-FOURTH SENATE DISTRICT

COMMITTEES
APPROPRIATIONS
BANKING, FINANCE & INSURANCE
VETERANS AFFAIRS
CHAIR
SELECT COMMITTEE ON MANUFACTURED HOMES & COMMUNITIES
CHAIR
SELECT COMMITTEE ON OC INFRASTRUCTURE & TECHNOLOGY

February 21, 2008

Michael V. Drake, M.D.
Chancellor
University of California, Irvine
509 Aldrich Hall
Irvine, California, 92697

Dear Chancellor Drake:

It is my understand that the University of California, Irvine has ranked third in the State of California out of seven approved programs to move forward in the California Institute Regenerative Medicine's (CIRM) Institute category. I recognize that there is a need for federal-funding-free space and core resources to facilitate integration of all phases of stem cell research. Therefore it is my honor to support the University of California, Irvine's grant request to the California Institute Regenerative Medicine (CIRM) for funding to construct a building to house the Institute for Stem Cell Research.

When the people of California passed Proposition 71 their expectation from the research community was for basic stem cell research to be translated to clinical application. UC Irvine's program in stem cell research is poised to deliver on that expectation. Your Institute will bring experienced clinicians together with the leading experts from disparate fields such as developmental biology, bioengineering, systems biology, informatics and imaging to address some of the critical issues in this emergent stem cell field. The breadth and depth of the UC Irvine's stem cell biology and regenerative medicine research program, which has already made important advances and secured significant funding from CIRM, will act as a catalyst for new fundamental discoveries in stem cell biology, which in turn will germinate the process of development of translational research, leading to new treatments for human disease and disorders.

I am confident that the creation of an Institute at the University of California, Irvine will attract the brightest minds to California leading to the development of new improved methods of developing and testing drugs for treating disease – exactly what the citizens of California supported. In the long term, the return to the State in terms of health benefits, revenue, and job creation will be significant.

I strongly support your efforts to create the Institute for Stem Cell Research at UCI. Please feel free to contact me at (714) 558-4400 if I can be of any assistance.

Sincerely,

LOU CORREA
State Senator, 34th District

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

Office of the Executive Vice Chancellor

509 Administration
Irvine, CA 92697-1000
(949)824-6296
(949)824-2438 Fax

March 15, 2007

Dr. Charles F. Louis, Vice Chancellor for Research
Office of Research
University of California Riverside
900 University Avenue
Riverside, CA 92521

Dear Vice Chancellor Louis:

It is with great enthusiasm that I write this letter describing the mutual understanding between our two campuses. During this past year the faculty of our two campuses have worked together to build our strengths in human embryonic stem cell (hESC) biology. The meetings conducted during this time, both here at UCI and at UCR, have established strong working relationships between our scientists and our administrators. I am confident that together we can make important contributions to hESC biology with the goal of eventually developing new treatments for human diseases and disorders.

One of the most important demonstrations of those interactions are the commitments our respective faculty have made. These commitments include:

- Faculty of both campuses have agreed to serve on our respective oversight committees for managing the shared research laboratories;
- UCR plans to continue to send students, postdoctoral fellows and faculty to the hESC Techniques Course at UCI as they did in the past;
- UCR faculty will participate with the UCI faculty in teaching the hESC Techniques Course in the near future;
- UCR faculty will have access to the Sue and Bill Gross Stem Cell Research Center as a resource to derive their hESC lines;
- Center research staff will be available to monitor ongoing experiments, work directly with faculty to facilitate their work, and report results directly to respective faculty;
- UCI faculty will have the opportunity to interact with UCR faculty and staff as they conduct stem cell experiments utilizing UCRs considerable resources in RNA interference (RNAi) and in small-molecule chemical libraries;

- When UCR faculty and staff need to stay overnight in Orange County in connection with collaborative stem cell research and training, Center staff will assist is facilitating overnight stays at UCI or if needed, local hotels.

As we move forward, I look forward to solidifying our further interactions and collaborations, both to support work on hESCs on our campuses and to making a real and lasting contribution to treating human diseases and disorders.

Sincerely,

Michael R. Gottfredson
Executive Vice Chancellor
and Provost

I agree with the above description of the collaboration between UCI and UCR, and look forward to our continued interactions in stem cell research and training,

Sincerely,

Charles F. Louis
Vice Chancellor for Research
UC Riverside